

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Réception des soumissions - TPSGC / Bid
Receiving - PWGSC
1550, Avenue d'Estimauville
1550, D'Estimauville Avenue
Québec
Québec
G1J 0C7

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet Naval Battle Management C2	
Solicitation No. - N° de l'invitation W7701-145842/A	Date 2014-10-02
Client Reference No. - N° de référence du client W7701-14-5842	
GETS Reference No. - N° de référence de SEAG PW-\$QCN-015-16129	
File No. - N° de dossier QCN-4-37071 (015)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-10-20	Time Zone Fuseau horaire Heure Avancée de l'Est HAE
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Legendre, Sylvie	Buyer Id - Id de l'acheteur qcn015
Telephone No. - N° de téléphone (418) 649-2860 ()	FAX No. - N° de FAX (418) 648-2209
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: R & D POUR LA DÉFENSE CANADA - VALCARTIER BATIMENT 53 2459 ROUTE DE LA BRAVOURE QUÉBEC Québec G3J1X5 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

TPSGC/PWGSC
601-1550, Avenue d'Estimauville
Québec
Québec
G1J 0C7

Delivery Required - Livraison exigée Voir Doc.	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

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PART 1 - GENERAL INFORMATION

1. Introduction

The bid solicitation document is divided into seven parts plus attachments and annexes as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided;
- Part 6 Security and Financial Requirements: includes specific requirements that must be addressed by bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Statement of Work, the Basis of Payment, the Contractor Disclosure of Foreground Information and the DND 626, Task Authorization Form

2. Summary

(a) Title

Naval Battle Management Command & Control (C2) Automation, Integration & Demonstration

(b) Objective

The high-level objectives of this contract are:

- To explore, develop, integrate, and demonstrate emerging automation and coordination architectures, algorithms, concepts and technologies.
- To exploit and increase the readiness level of key technologies that will have a significant impact on, and provide valuable enhancements to the future conduct of Integrated Air and Missile Defence (IAMD) operations by the Royal Canadian Navy (RCN), and its surface platforms.

(c) Client department:

The organization for which the services are to be rendered is Defence Research and Development Canada - Valcartier (DRDC - Valcartier).

(d) Period of the Contract:

The period of the contract is from the date of the contract to March 31, 2018 inclusive.

(e) Key information

- i. Estimated amount of available funding for this Contract : \$4,348,771.47, Applicable Taxes extra (\$1,574,254.47, Applicable Taxes extra for the firm part and \$2,774,517.00, Applicable Taxes extra for the part involving task authorizations)
- ii. Defence Research and Development Canada - Valcartier has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada.
- iii. Bidders must provide a list of names, or other related information as needed, pursuant to section 01 of Standard Instructions 2003.
- iv. For services requirements, Bidders in receipt of a pension or a lump sum payment must provide the required information as detailed in article 3 of Part 2 of the bid solicitation.
- v. The requirement is limited to Canadian services.
- vi. The requirement is subject to the Agreement on Internal Trade (AIT).
- vii. This procurement is subject to the Controlled Goods Program.
- viii. There is a security requirement associated with this requirement. For additional information, consult Part 6 - Security, Financial and Other Requirements, and Part 7 - Resulting Contract Clauses. Bidders should consult the "Security Requirements for PWGSC Bid Solicitations - Instructions for Bidders" (<http://www.tpsgc-pwgsc.gc.ca/app-acq/lc-pl/lc-pl-eng.html#a31>) document on the Departmental Standard Procurement Documents website.

3. Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within **15 working days** of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

PART 2 - BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2014-06-26) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: sixty (60) days

Insert: one hundred twenty (120) days

1.1 SACC Manual Clauses

A7035T (2007-05-25), List of Proposed Subcontractors

2. Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date and time indicated on **page 1** of the bid solicitation and at the following address:

Public Works and Government Services Canada
1550, d'Estimauville Avenue
Quebec (QC), G1J 0C7

Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.

3. Former Public Servant - Competitive - Bid

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPS, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

For the purposes of this clause, "*former public servant*" is any former member of a department as defined in the *Financial Administration Act*, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

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- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the [Public Service Superannuation Act](#) (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the [Supplementary Retirement Benefits Act](#), R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the [Canadian Forces Superannuation Act](#), R.S., 1985, c.C-17, the [Defence Services Pension Continuation Act](#), 1970, c.D-3, the [Royal Canadian Mounted Police Pension Continuation Act](#), 1970, c.R-10, and the [Royal Canadian Mounted Police Superannuation Act](#), R.S., 1985, c.R-11, the [Members of Parliament Retiring Allowances Act](#), R.S., 1985, c.M-5, and that portion of pension payable to the [Canada Pension Plan Act](#), R.S., 1985, c.C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension?

Yes ()

No ()

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2012-2](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive?

Yes ()

No ()

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

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For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes

4. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority preferably by e-mail at the following address: sylvie.legendre@tpsgc-pwgsc.gc.ca, no later than **eight (8) calendar days** before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as proprietary will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

5. Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force **in Quebec**.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

6. Basis for Canada's Ownership of Intellectual Property

Canada has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada on the following grounds:

The Treasury Board, granted Defense Research and Development Canada exemption from the Treasury Board Policy on "Title to Intellectual Property Arising Under Crown Procurement Contracts"

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (4 hard copies and 4 soft copies on CD or DVD)

Section II: Financial Bid (1 hard copy)

Section III: Certifications (1 hard copy)

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper; and
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement

(<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- (1) use paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- (2) use an environmentally-preferable format including black and white printing instead of colour printing, print double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

1.1 Section I: Technical Bid

- (a) In their technical bid, bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability and describe their approach in a thorough, concise and clear manner for carrying out the work.

The technical bid should clearly address and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

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1.2 Section II: Financial Bid

1.2.1 Bidders must submit their financial bid in accordance with the **Financial Bid Presentation Sheet in Attachment 1**. Prices must be in Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included.

1.3 Section III: Certifications

Bidders must submit the certifications required under **Part 5**.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

1.1 Technical Evaluation

Except where expressly provided otherwise, the experience described in the bid must be the experience of the Bidder itself (which includes the experience of any companies that formed the Bidder by way of a merger but does not include any experience acquired through a purchase of assets or an assignment of contract). The experience of the Bidder's affiliates (i.e. parent, subsidiary or sister corporations), subcontractors, or suppliers will not be considered.

1.1.1 Mandatory Technical Criteria

Refer to **Attachment 2**, Mandatory and Point Rated Technical Criteria.

1.1.2 Point Rated Technical Criteria

Refer to **Attachment 2**, Mandatory and Point Rated Technical Criteria.

1.2 Financial Evaluation

1.2.1 Mandatory Financial Criteria

Bidders must submit their financial bid in accordance with **1.2 Section II: Financial Bid of the Part 3** - Bid preparation instructions.

1.2.2 Evaluation of Price

The price of the bid will be evaluated in Canadian dollars, applicable taxes excluded, FOB destination, Canadian customs duties and excise taxes included.

For evaluation purposes only, the price of the bid will be determined as detailed in **Attachment 3, Evaluation of Price**.

2. Basis of Selection

2.1 Basis of Selection - Highest Combined Rating of Technical Merit and Price

- 1. To be declared responsive, a bid must:
 - (a) Comply with all the requirements of the bid solicitation;
 - (b) Meet all mandatory criteria;
 - (c) Obtain the required minimum points for each criterion and each group of criteria with a pass mark;
 - (d) Obtain the required minimum of points overall for the technical evaluation criteria which are subject to point rating.

2. Bids not meeting (a) or (b) or (c) or (d) will be declared non-responsive.
3. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70 % for the technical merit and 30 % for the evaluated price.
4. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by 70
5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
7. Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 70/30 ratio of technical merit and price, respectively. The total available points equal 230 and the lowest evaluated price is \$4,270,398.45.

Basis of Selection - Highest Combined Rating Technical Merit (70%) and Price (30%)

	Bidder		
	Bidder 1	Bidder 2	Bidder 3
Overall Technical Score	180/230	210/230	210/230
Bid Evaluation Value (Attachment 3 – Bid Evaluation Value)	\$4,270,398.45	\$4,331,990.95	\$4,704,977.67
	Calculations		
Technical Merit Score	$180/230 \times 70 = 54.78$	$210/230 \times 70 = 63.91$	$210/230 \times 70 = 63.91$
Pricing Score	$4270398.45/4270398.45 \times 30 = 30$	$4270398.45 / 4331990.95 \times 30 = 29.57$	$4270398.45 / 4704977.67 \times 30 = 27.23$
Combined Rating	84.78	93.48	91.14
Overall Rating	3rd	1st (winner)	2nd

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and associated information to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default in carrying out any of its obligations under the Contract, if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority may render the bid non-responsive or constitute a default under the Contract.

1. Certifications Required Precedent to Contract Award

1.1 Integrity Provisions - Associated Information

By submitting a bid, the Bidder certifies that the Bidder and its Affiliates are in compliance with the provisions as stated in Section 01 Integrity Provisions - Bid of Standard Instructions 2003. The associated information required within the Integrity Provisions will assist Canada in confirming that the certifications are true.

1.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "[FCP Limited Eligibility to Bid](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from [Employment and Social Development Canada \(ESDC\) - Labour's website.](#)

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list at the time of contract award.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed annex [Federal Contractors Program for Employment Equity - Certification](#), before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

1.3 Canadian Content Certification

This procurement is limited to Canadian services.

The Bidder certifies that:

() the service(s) offered is (are) a Canadian service as defined in paragraph 2 of clause A3050T.

1.3.1 SACC Manual clause A3050T (2010-01-11), Canadian Content Definition

1.4 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability. Failure to comply with the request may result in the bid being declared non-responsive.

1.5 Education and Experience

The Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

1.6 Language Capability

The Bidder certifies that it has the language capability required to perform the Work, as stipulated in the Statement of Work.

PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

1. Security Requirement

1. At the date of bid closing, the following conditions must be met:
 - (a) the Bidder must hold a valid organization security clearance as indicated in Part 7 - Resulting Contract Clauses;
 - (b) the Bidder's proposed individuals requiring access to classified or protected information, assets or sensitive work site(s) must meet the security requirement as indicated in Part 7 - Resulting Contract Clauses;
 - (c) the Bidder must provide the name of all individuals who will require access to classified or protected information, assets or sensitive work sites. This information must be submitted with the bid.
 - (d) the Bidder's proposed location of work performance or document safeguarding must meet the security requirement as indicated in Part 7 - Resulting Contract Clauses;
 - (e) the Bidder must provide the address(es) of proposed location(s) of work performance or document safeguarding.
2. For additional information on security requirements, bidders should consult the "Security Requirements for PWGSC Bid Solicitations - Instructions for Bidders" (<http://www.tpsgc-pwgsc.gc.ca/app-acq/lc-pl/lc-pl-eng.html#a31>) document on the Departmental Standard Procurement Documents website.

2. Financial Capability

SACC Manual clause A9033T (2012-07-16), Financial Capability

3. Controlled Goods Requirement

SACC Manual clause A9130T (2014-06-26), Controlled Goods Program - Bid

PART 7 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

1. Statement of Work

For the firm portion:

The Contractor must perform the Work in accordance with the Statement of Work at Annex A and the Contractor's technical bid entitled _____, dated _____. (to be completed by Canada at Contract award)

For the portion involving task authorizations:

The Contractor must perform the Work in accordance with the Statement of Work at Annex A and the Contractor's technical bid entitled _____, dated _____, as and when requested by Canada during the period of the Contract. **(to be completed by Canada at contract award)**

An obligation for any Work will come into force only when a Task Authorization (TA) is approved and issued in accordance with the clause entitled "Task Authorization Process".

1.2 Task Authorization

The Work or a portion of the Work to be performed under the Contract will be on an "as and when requested basis" using a Task Authorization (TA). The Work described in the TA must be in accordance with the scope of the Contract.

1.2.1 Task Authorization Process

1. The DND Procurement Authority will provide the Contractor with a description of the task using the DND 626, Task Authorization Form specified in Annex E.
2. The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis (bases) and methods of payment as specified in the Contract.
3. The Contractor must provide the DND Procurement Authority, **within five (5) calendar days** of its receipt, the proposed total estimated cost for performing the task and a breakdown of that cost, established in accordance with the Basis of Payment specified in the Contract. The Contractor will not be paid for preparing or providing its response or for providing other information required to prepare and issue the TA.

When it is required by DND Procurement Authority, the Contractor must also provide a technical proposal that must include one or many of the following items:

- (a) a description of the understanding of objectives and scope of the work,
- (b) a description of the approach and methodology that will be put forward to perform the work,
- (c) a description of the anticipated deliverables,

- (d) an estimation of the level of success anticipated for the activities to be performed,
 - (e) the deviations proposed to the requirements,
 - (f) an identification of the major risks and a mitigation plan for each of them,
 - (g) a complete work schedule and a prioritization of the activities to be performed.
4. The Contractor must not commence work until a TA authorized by the DND Procurement Authority has been received by the Contractor. The Contractor acknowledges that any work performed before a TA has been received will be done at the Contractor's own risk.

1.2.2 Task Authorization Limit

The DND Procurement Authority may authorize individual task authorizations up to a limit of **\$150,000.00** Applicable Taxes included, inclusive of any revisions.

Any task authorization to be issued in excess of these limits must be authorized by the Contracting Authority before issuance.

1.2.3 Canada's Obligation - Portion of the Work - Task Authorizations

Canada's obligation with respect to the portion of the Work under the Contract that is performed through task authorizations is limited to the total amount of the actual tasks performed by the Contractor.

1.2.4 Task Authorization - Department of National Defence

The administration of the Task Authorization process will be carried out by **The Procurement and Payment group at Defence Research and Development Canada - Valcartier, represented by the DND Procurement Authority**. This process includes monitoring, controlling and reporting on expenditures of the contract with task authorizations to the Contracting Authority.

1.3 Disclosure Certification

On completion of the Work, the Contractor must submit to the Technical Authority and to the Contracting Authority a copy of the Contractor Disclosure of Foreground Information attached as **Annex C** stating that all applicable disclosures were submitted.

2. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the *Standard Acquisition Clauses and Conditions* Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

2.1 General Conditions

2040 (2014-06-26), General Conditions - Research & Development, apply to and form part of the Contract.

2.2 Supplemental General Conditions

The following supplemental general conditions apply to and form part of the Contract:

4002 (2010-08-16), Software Development or Modification Services

2.3 SACC Manual Clauses

K3410C (2008-12-12), Canada to Own Intellectual Property Rights in Foreground Information

K3305C (2008-05-12), License to Intellectual Property Rights in Foreground Information

3. Security Requirement

- 3.1 The following security requirement (SRCL and related clauses) applies and form part of the Contract.
1. The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer, hold a valid **Facility Security Clearance at the level of SECRET**, with approved **Document safeguarding at the level of SECRET**, issued by the Canadian Industrial Security Directorate (CISD), Public Works and Government Services Canada (PWGSC).
 2. The Contractor/Offeror personnel requiring access to PROTECTED/CLASSIFIED information, assets or sensitive work site(s) **must be citizens of Canada, US, UK, AUS, NZ or permanent residents of Canada and must EACH hold a valid RELIABILITY STATUS or SECRET clearance**, as required, granted or approved by CISD/PWGSC.
 3. This contract includes access to **controlled goods**. Prior to access, the contractor must be registered in the Controlled Goods Program of Public Works and Government Services Canada.
 4. Processing of PROTECTED/CLASSIFIED information electronically at the Contractor/Offeror's site is **NOT** permitted under this Contract/Standing Offer.
 5. Subcontracts which contain security requirements are **NOT** to be awarded without the prior written permission of CISD/PWGSC.
 6. The Contractor/Offeror must comply with the provisions of the:
 - (a) Security Requirements Check List and security guide (if applicable), attached at Annex D;
 - (b) *Industrial Security Manual* (Latest Edition).

4. Term of Contract

4.1 Period of Contract

The Work is to be performed from date of Contract to March 31st, 2018.

5. Authorities

5.1 Contracting Authority

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QCN-4-37071

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qcn015
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The Contracting Authority for the Contract is:

Sylvie Legendre
Public Works and Government Services Canada
601-1550 D'Estimauville
Québec, QC.
G1J 0C7

Telephone: 418-649-2860
Facsimile: 418-648-2209
E-mail address: sylvie.legendre@tpsgc-pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

5.2 Technical Authority *(to be completed by Canada at contract award)*

The Technical Authority for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: ____-____-_____
Facsimile: ____-____-_____
E-mail address: _____

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority; however, the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

5.3 Contractor's Representative *(to be completed by Canada at contract award)*

Administrative representative :

Name : _____
Telephone : _____
Facsimile : _____
Email : _____

Technical representative :

Name : _____
Telephone : _____
Facsimile : _____
Email : _____

5.4 Procurement Authority *(to be completed by Canada at contract award)*

The Procurement Authority for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____
Telephone: _____

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Facsimile: _____
E-mail: _____.

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

6. Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](#) (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada.

7. Payment

7.1 Basis of Payment

7.1.1 For the firm portion of the Work (tasks 1 to 7):

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work, as determined in accordance with the Basis of Payment in Annex B, to a limitation of expenditure of **\$1,574,254.47**. Customs duties are included and Applicable Taxes are extra.

7.1.2 For the portion of the Work involving task authorizations process (tasks 8 to 15):

(i) For the Work provided under a Task Authorization subject to a Firm Price:

In consideration of the Contractor satisfactorily completing all of its obligations under the authorized Task Authorization (TA), the Contractor will be paid a firm price in accordance with the basis of payment, in Annex B, as specified in the authorized TA. Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been authorized, in writing, by the Contracting Authority before their incorporation into the Work.

(ii) For the Work provided under a Task Authorization subject to a Ceiling Price :

The Contractor will be reimbursed its costs reasonably and properly incurred in the performance of the Work, plus a profit, as determined in accordance with the Basis of Payment in Annex B, to the ceiling price specified in the approved TA. Customs duties are included and Applicable Taxes are extra.

The ceiling price is subject to downward adjustment so as not to exceed the actual costs reasonably incurred in the performance of the Work and computed in accordance with the Basis of Payment.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority, before their incorporation into the Work.

(iii) For the Work provided under a Task Authorization subject to a Limitation of Expenditure :

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work specified in the authorized Task Authorization (TA), as determined in accordance with the Basis of Payment in Annex B, to the limitation of expenditure specified in the authorized TA.

Canada's liability to the Contractor under the authorized TA must not exceed the limitation of expenditure specified in the authorized TA. Customs duties are included and Applicable Taxes are extra.

No increase in the liability of Canada or in the price of the Work specified in the authorized TA resulting from any design changes, modifications or interpretations of the Work will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been authorized, in writing, by the Contracting Authority before their incorporation into the Work.

(iv) Travel and Living Expenses :

There will be no travel time or travel and living expenses payable for services rendered within 50 kilometres from Defence Research and Development Canada - Valcartier, located at 2459 de la Bravoure Road, Quebec City, Quebec.

For services rendered further than 50 kilometres from Defence Research and Development Canada - Valcartier, the Contractor will be paid its actual travel time in accordance with the hourly rates detailed in Annex B, Basis of Payment.

The Contractor will be reimbursed for the authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for overhead or profit, in accordance with the meal, private vehicle and incidental expense allowances specified in Appendices B, C and D of the Travel Directive, and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

All travel must have the prior authorization of the Technical Authority.

7.2 Limitation of Expenditure - Total

1. Canada's total liability to the Contractor under the Contract must not exceed the sum of **\$4,348,771.47**. Customs duties are included and Applicable Taxes are extra.
2. No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Work, will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:

- (a) when it is 75 percent committed, or
 - (b) four (4) months before the Contract expiry date, or
 - (c) as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work,
Whichever comes first.
3. If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

7.3 Method of Payment

7.3.1 Payments will be made not more frequently than once a month.

7.3.2 For the firm portion of the Work (tasks 1 to 7):

Progress Payments

1. Canada will make progress payments in accordance with the payment provisions of the Contract, no more than once a month, for cost incurred in the performance of the Work up to 90 percent of the amount claimed and approved by Canada if:

- (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111(<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf>), Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) the amount claimed is in accordance with the Basis of payment;
- (c) the total amount for all progress payments paid by Canada does not exceed 90 percent of the total amount to be paid under the Contract;
- (d) all certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives.

2. The balance of the amount payable will be paid in accordance with the payment provisions of the Contract upon completion and delivery of all work required under the Contract if the Work has been accepted by Canada and a final claim for the payment is submitted.

3. Progress payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the right to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from progress payments or otherwise must be refunded promptly to Canada.

7.3.3 For the portion of the Work involving the task authorizations process (tasks 8 to 15):

Depending on the method of payment specified in the applicable TA, one of the following methods of payment clauses will apply.

7.3.3.1 Single Payment (For a Firm Price TA, for a TA subject to a Limitation of Expenditure or a Ceiling Price)

Canada will pay the Contractor upon completion and delivery of the Work associated with the Task Authorization in accordance with the payment provisions of the Contract if:

- (a) an accurate and complete claim for payment using PWGSC-TPSGC 1111, Claim for Progress Payment, and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all such documents have been verified by Canada;
- (c) the Work delivered has been accepted by Canada.

7.3.3.2 Milestone Payments (For a Firm Price TA)

For any task authorization issued under the Contract that includes a schedule of milestone payments to be made once specific portions of the work have been completed and accepted, Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Task Authorization and the payment provisions of the Contract if:

- (a) an accurate and complete claim for milestone payment using PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;
- (c) all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

7.3.3.3 Progress Payments (For a TA subject to a Limitation of Expenditure or a Ceiling Price)

- (a) Canada will make progress payments in accordance with the payment provisions of the Task Authorization and the Contract, no more than once a month, for costs incurred in the performance of the Work up to 90 percent of the amount claimed and approved by Canada if:
 - (i) an accurate and complete claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
 - (ii) the amount claimed is in accordance with the Basis of Payment and the Task Authorization;

(iii) the total amount for all progress payments paid by Canada does not exceed 90 percent of the total amount to be paid under the Task Authorization.

(iv) all certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives.

(b) The balance of the amount payable will be paid in accordance with the payment provisions of the Task Authorization and the Contract upon completion and delivery of all work required under the Task Authorization if the Work has been accepted by Canada and a final claim for the payment is submitted.

(c) Progress payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the right to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from progress payments or otherwise must be refunded promptly to Canada.

7.4 SACC Manual Clauses

A9117C (2007-11-30), T1204 - Direct Request by Customer Department
C0305C (2014-06-26), Cost Submission - Limitation of Expenditure or Ceiling Price

7.5 Discretionary Audit

SACC Manual Clause C0705C (2010-01-11), Discretionary Audit

8. Invoicing Instructions

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111. Form PWGSC-TPSGC 1111 is available at the following Website <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>

Each claim must show:

- (a) all information required on form PWGSC-TPSGC 1111;
- (b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
- (c) the Task Authorization (TA) number, as applicable;
- (d) the description of the milestone invoiced, as applicable.

2. For the firm part of the Work as for TAs subject to a Limitation of Expenditure or a Ceiling Price, each invoice must be supported by:

- (a) a list of all expenses, in accordance with the TA;
- (b) a copy of time sheets to support the time claimed;
- (c) a copy of the invoices, receipts, vouchers for all direct expenses, travel and living expenses;
- (d) a copy of the monthly progress report.

3. Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.

4. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Contracting Authority for certification.

ATTN: _____ (to be completed at Contract award)
Public Works and Government Services Canada
601-1550 D'Estimauville
Québec, QC.
G1J 0C7

The Contracting Authority will then forward the original and two (2) copies of the claim to the Technical Authority for appropriate certification after inspection and acceptance of the Work takes place, and onward submission to the Payment Office for the remaining certification and payment.

5. The Contractor must not submit claims until all work identified in the claim is completed.

9. Certifications

9.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing associated information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the associated information, or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

9.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "[FCP Limited Eligibility to Bid](#)" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

9.3 SACC Manual Clauses

A3060C (2008-05-12), Canadian Content Certification

10. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____ **(to be inserted at contract award)**.

11. Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;

- (b) the supplemental general conditions 4002 (2010-08-16), Software Development or Modification Services
- (c) the general conditions 2040 (2014-06-26), General Conditions - Research & Development
- (d) Annex A, Statement of Work
- (e) Annex B, Basis of Payment;
- (f) Annex C, Contractor Disclosure of Foreground Information
- (g) Annex D, Security Requirements Check List
- (h) Annex E, DND 626, Task Authorization Form
- (i) the signed Task Authorizations (including all of its annexes, if any)
- (j) the Contractor's bid dated _____ **(to be completed at contract award)**.

12. Defence Contract

SACC Manual clause A9006C (2012-07-16), Defence Contract

13. Foreign Nationals (Canadian Contractor)

SACC Manual clause A2000C (2006-06-16), Foreign Nationals (Canadian Contractor)

14. Insurance

SACC Manual clause G1005C (2008-05-12), Insurance

15. Controlled Goods Program

15.1 SACC Manual clause A9131C (2011-05-16), Controlled Goods Program

15.2 SACC Manual clause B4060C (2011-05-16), Controlled Goods

16. Progress Reports

1. The Contractor must submit monthly reports, in electronic format, on the progress of the Work, to both the Technical Authority and the Contracting Authority.

2. The progress report must contain two parts:

(a) PART 1: The Contractor must answer the following three questions:

- (i) Is the project on schedule?
- (ii) Is the project within budget?
- (iii) Is the project free of any areas of concern in which the assistance or guidance of Canada may be required?

Each negative response must be supported with an explanation.

(b) PART 2: A narrative report, brief, yet sufficiently detailed to enable the Technical Authority to evaluate the progress of the Work, containing as a minimum:

- (i) A description of the progress of each task and of the Work as a whole during the period of the report. Sufficient sketches, diagrams, photographs, etc., must be included, if necessary, to describe the progress accomplished.
- (ii) An explanation of any variation from the work plan.

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(iii) A description of trips or conferences connected with the Contract during the period of the report.

(iv) A description of any major equipment purchased or constructed during the period of the report.

17. Site Regulations

The Contractor must comply with all standing orders or other regulations, instructions and directives in force on the site where the Work is performed.

18. Identification Badge

SACC Manual clause **A9065C** (2006-06-16), Identification Badge

ATTACHMENT 1

FINANCIAL BID PRESENTATION SHEET

FOR THE FIRM PORTION OF THE WORK (TASKS 1 to 7)

1. **LABOUR:** Firm all-inclusive rates (Applicable Taxes extra, including profit and overhead) as follows:

Instructions to Bidders:

- a. The Bidder must propose a firm all-inclusive hourly rate (including profit and overhead) for each Labour Category, for each period.
- b. The bidder may propose a number of resources per category that is smaller than the number of lines available in the following table, but not greater.
- c. The bidder must propose at least one resource per category.

Proposed Resources by labour categories (First and last name)	Period from April 1, 2014 to March 31, 2015	Period from April 1, 2015 to March 31, 2016
	Firm hourly rates	Firm hourly rates
Effector Management		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Electronic Warfare		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Planning		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
3. _____	_____ \$	_____ \$
Threat Evaluation		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$

Plan Recognition 1. _____ 2. _____ 3. _____	_____ _____ _____	_____ _____ _____
Engageability Assessment 1. _____ 2. _____	_____ _____	_____ _____
Constraint Satisfaction 1. _____ 2. _____ 3. _____	_____ _____ _____	_____ _____ _____
Distributed Systems and Architectures 1. _____ 2. _____ 3. _____	_____ _____ _____	_____ _____ _____
System Integration 1. _____ 2. _____ 3. _____	_____ _____ _____	_____ _____ _____
Complex Software/Systems Testing and Evaluation 1. _____ 2. _____	_____ _____	_____ _____
Software Development 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____	_____ _____ _____ _____ _____ _____ _____ _____	_____ _____ _____ _____ _____ _____ _____ _____

Naval Warfare Modeling & Simulation (M&S) Software		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
3. _____	_____ \$	_____ \$
Context-Aware Systems		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Game Theory		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Agent & Multi-Agent Systems		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Project Management		
1. _____	_____ \$	_____ \$

2. **EQUIPEMENT, MATERIALS AND SUPPLIES:** at laid down cost without markup

Est.: \$ _____

3. **TRAVEL & LIVING:**

(a) Canada will not accept any travel and living expenses incurred by the Contractor in the performance of the Work, for:

(i) services provided within the Québec City Region (including Defence Research and Development Canada, Valcartier facility), and

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- (ii) any travel between the Contractor's place of business and the Québec City Region (including Defence Research and Development Canada, Valcartier facility).
- (b) For services to be provided outside the Québec City Region, the Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive (http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".
- (c) Canada will not accept any travel and living expenses incurred by the Contractor as a consequence of any relocation of personnel required to satisfy the terms of this Contract.
- (d) All travel must have prior authorization of the Technical Authority. All payments are subject to government audit.

Est.: \$ _____

TOTAL COST TO A LIMITATION OF EXPENDITURE for the firm portion of the Work:

\$1,574,254.47
(Applicable Taxes extra)

FOR THE PORTION OF THE WORK REALIZED AS-AND-WHEN-REQUESTED USING A TASK AUTHORIZATION (TASKS 8 to 15):

1. **LABOUR:** Firm all-inclusive rates (Applicable Taxes extra, including profit and overhead) as follows:

Instructions to Bidders:

- a. The Bidder must propose a firm all-inclusive hourly rate (including profit and overhead) for each Labour Category, for each period.
- b. The bidder may propose a number of resources smaller than the number of lines available in the following table but not greater.
- c. The bidder must propose at least one resource per category.

Proposed Resources by labour categories (First and last name)	Period from April 1, 2014 to March 31, 2015	Period from April 1, 2015 to March 31, 2016	Period from April 1, 2016 to March 31, 2017	Period from April 1, 2017 to March 31, 2018
	Firm hourly rates	Firm hourly rates	Firm hourly rates	Firm hourly rates
Effector Management				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
Planning				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
3. _____	_____ \$	_____ \$	_____ \$	_____ \$
Threat Evaluation				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
Plan Recognition				

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1. _____ 2. _____ 3. _____	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$
Distributed Systems and Architectures 1. _____ 2. _____ 3. _____	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$
System Integration 1. _____ 2. _____ 3. _____	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$
Complex Software/Systems Testing and Evaluation 1. _____ 2. _____	_____ \$ _____ \$	_____ \$ _____ \$	_____ \$ _____ \$	_____ \$ _____ \$
Software Development 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____	_____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$ _____ \$
Naval Warfare Modeling & Simulation (M&S) Software 1. _____ 2. _____ 3. _____	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$	_____ \$ _____ \$ _____ \$
Natural Language Processing	_____ \$	_____ \$	_____ \$	_____ \$

1. _____ 2. _____	_____ \$	_____ \$	_____ \$	_____ \$
Context-Aware Systems				
1. _____ 2. _____	_____ \$ _____ \$	_____ \$ _____ \$	_____ \$ _____ \$	_____ \$ _____ \$
Game Theory				
1. _____ 2. _____	_____ \$ _____ \$	_____ \$ _____ \$	_____ \$ _____ \$	_____ \$ _____ \$
Agent & Multi-Agent Systems				
1. _____ 2. _____	_____ \$ _____ \$	_____ \$ _____ \$	_____ \$ _____ \$	_____ \$ _____ \$
Project Management				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$

2. **MATERIALS AND SUPPLIES and EQUIPMENT:** at laid down cost without markup

3. **TRAVEL & LIVING:**

- (a) Canada will not accept any travel and living expenses incurred by the Contractor in the performance of the Work, for:
 - (i) services provided within the Québec City Region (including Defence Research and Development Canada, Valcartier facility), and
 - (ii) any travel between the Contractor's place of business and the Québec City Region (including Defence Research and Development Canada, Valcartier facility).
- (b) For services to be provided outside the Québec City Region, the Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive (http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".
- (c) Canada will not accept any travel and living expenses incurred by the Contractor as a consequence of any relocation of personnel required to satisfy the terms of this Contract.

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- (d) All travel must have prior authorization of the Technical Authority. All payments are subject to government audit.

Est.: \$ _____

TOTAL ESTIMATED COST TO A LIMITATION OF EXPENDITURE for the task authorization part:
\$2,774,517.00
(Applicable Taxes extra)

ATTACHMENT 2

MANDATORY AND POINT RATED TECHNICAL CRITERIA

A. General Instructions to Bidders

At bid closing time, the Bidder must comply with the mandatory technical criteria and provide the necessary documentation to support compliance. Any bid which fails to meet one or several of the following mandatory technical criteria will be declared non-responsive. In order to allow the evaluation team to properly evaluate each technical evaluation criteria (mandatory and rated), the bidder must clearly indicate the name of the proposed resources and the categories for which they are proposed.

B. Mandatory Criteria

	Compliant	Non Compliant
<p>The bidder must have completed at least three (3) R&D projects of a value of at least \$200K each during the last ten (10) years in the development, integration, and demonstration of concepts, architecture, and solutions for defense and security applications.</p> <p>Each project proposed must be described in sufficient detail to allow the evaluation team to properly assess the experience of the bidder.</p> <p>The following information should be provided for each project presented:</p> <ul style="list-style-type: none"> • Project name or contract number; • Project description ; • Description of the tasks carried out by the bidder; • Duration of the project; • Project start and end dates (years and months) • Approaches/tools/technologies used as part of the project; • Client name • Project value; and • Any other relevant information supporting the project's eligibility. 		
The bidder must propose at least one resource in each of the resource categories.		
<p>The bidder must propose a maximum of one (1) resource for the following area :</p> <p style="text-align: center;">Project Management</p> <p>The resource can be proposed for more than one area.</p>		
The bidder must propose a maximum of two (2) resources for each of the following areas :		

<p>Effector Management Electronic Warfare Threat Evaluation Engageability Assessment Complex Software /Systems Testing and Evaluation Natural Language Processing Context-Aware Systems Game Theory Agents and Multi-Agent Systems</p> <p>A given resource can be proposed for more than one area.</p>		
<p>The bidder must propose a maximum of three (3) resources for each of the following areas :</p> <p>Planning Plan Recognition Constraint Satisfaction Distributed Systems and Architectures Naval Warfare Modeling & Simulation Software System Integration</p> <p>A given resource can be proposed for more than one area.</p>		
<p>The bidder must propose a maximum of eight (8) resources for the following area :</p> <p>Software Development</p> <p>A given resource can be proposed for more than one area.</p>		
<p>For each resource category for which a SECRET clearance is required, the cleared resources proposed by the Bidder must account for at least 30% of the effort of each category that requires the SECRET clearance (it is not mandatory that all the resources of the category have a SECRET clearance (see SRCL guide at Annex D)).</p> <p>The bidder must provide the names and the security clearance of each of the proposed resources. The bidder must provide the percentage of involvement of each resource with respect to the total effort of the category.</p>		

C. Point Rated Technical Criteria	Max	Min
1. MANAGEMENT PROPOSAL (Firm portion)	30	15
2. MANAGEMENT PROPOSAL (Task authorization portion)	20	10
3. TECHNICAL PROPOSAL (Firm portion)	60	30
4. EXPERIENCE OF RESOURCES	120	80
TOTAL	230	135

1. MANAGEMENT PROPOSAL FOR THE FIRM PORTION OF THE WORK	30	15
<p>I. Effort & resource allocation</p> <p>The bidder should propose a work schedule that respects project deadlines. The effort level allocated to each task and sub-task should be appropriate and realistic, and should ensure that project objectives are met.</p> <p>The bidder should assign all the resources proposed to the various project tasks based on their area of expertise. The team structure and the roles of the resources should be clearly defined and in line with their level of experience and skills/area of expertise. The size of the teams assigned to each task should be optimized, i.e., unnecessary redundancy of expertise and fragmentation of effort should be avoided. The task teams should be balanced in terms of areas of expertise with an optimized mix of junior, intermediate, and senior levels of experience.</p>	<ul style="list-style-type: none"> • Very good allocation: 30 points Allocation is complete, clear, optimized, and realistic. Very strong probability that objectives will be achieved. • Good allocation: 15 points Allocation is complete, clear, but lacks optimization and/or realism. Good probability that objectives will be achieved. • Weak allocation: 0 point Unclear and / or incomplete allocation. Strong probability that a number of objectives will not be achieved. 	30 -
2. MANAGEMENT PROPOSAL FOR THE TASK AUTHORIZATION PORTION OF THE WORK (to be performed on an as-and-when requested basis using the TA process)	20	10
I. Project Management	<ul style="list-style-type: none"> • Very good methodology: 20 points 	20

<p>The Bidder should describe the project management methodology, for the TA portion of the work, in terms of: Work schedule; Meeting deadlines; Level of effort allocated to each task; Team composition; Availability of resources; Risk management (given the uncertainty in the activation and dates of task authorizations); and Quality of services rendered</p>	<p>– Description of team composition, effort allocation, availability of resources is very complete and clear; approach for risk management and guarantee of quality of service is clear and realistic; very strong probability that objectives of the TA portion will be achieved.</p> <ul style="list-style-type: none"> • Good effort methodology: 10 points <p>– Description of team composition, effort allocation, availability of resources is mostly complete and clear; approach for risk management and guarantee of quality of service is provided, but lack clarity and/or realism; good probability that objectives of the TA portion will be achieved.</p> <ul style="list-style-type: none"> • Weak effort methodology: 0 point <p>– Description and approach are missing or severely lack completeness, clarity, and realism; strong probability that a number of objectives of TA portion will not be achieved.</p>		
<p>3. TECHNICAL PROPOSAL FOR THE FIRM PORTION OF THE WORK</p>		<p>60</p>	<p>30</p>
<p>I. Bidder's understanding of the project</p> <p>The bidder should use his own words to provide a convincing demonstration of its clear understanding of the context, scope and objectives of the statement of work. The demonstrated understanding of the context, scope and objectives should be complete and should not be limited to the description in the statement of work. The bidder should also recognize and describe direct as well as peripheral problems related to the SOW, and present ideas about how to tackle/solve them.</p>	<p>The understanding of the three elements (Context, Scope, and Objectives) will be evaluated independently. The score given will be the average of the individual scores for the three elements. The demonstrated understanding :</p> <ul style="list-style-type: none"> • Exceeds the requirements: 30 points • Meets the requirements: 15 points • Is below the requirements: 0 point <p>An additional 10 points will awarded for a description of the direct and peripheral problems that meet the requirements.</p>	<p>40</p>	<p>-</p>

<p>II. Methodology proposed to achieve objectives</p> <p>The bidder should clearly describe the strategy and methodology he intends to adopt to meet the requirements and should provide an assessment of the level of success anticipated. The technical methodology proposed should be consistent with the requirements of the SOW.</p> <p>Sufficient detail should be provided to demonstrate that the bidder clearly understands the requirements, masters the methodology, and that the methodology proposed will ensure that the objectives are achieved.</p>	<ul style="list-style-type: none"> • Excellent methodology proposed to achieve objectives. Description of methodology is very clear and precise. The proposed approach fully meets the needs of the project : 20 points • Good methodology proposed to achieve objectives. Description of methodology is clear and precise. The proposed approach meets the needs of the project: 10 points • Poor methodology proposed to achieve objectives. Description of methodology is inadequate. The proposed approach meets few needs of the project: 0 point 	<p>20</p>	<p>-</p>
<p>4. EXPERIENCE OF RESOURCES DIRECTLY INVOLVED IN THE PROJECT</p> <p>The resource's experience will be evaluated on the basis of the resumes of the resources proposed by the bidder to carry out the various project tasks. Each resume should include enough information to allow the evaluation team to properly assess the experience of the resources proposed by describing the professional experience related to each criterion.</p> <p>When more than one resource is proposed for a resource category, each resource will be evaluated separately and the total score for the resource category will be the average score. Only those resources that will be active in at least 10% of the effort of the corresponding category will be considered for the evaluation. <u>The bidder must provide the percentage of the involvement of each resource with respect to the total effort of the category.</u> Average is computed based on the level of the involvement the resource into the effort of the category: Average = sum (% of Involvement X Experience/ sum (% Involvement of considered resources)).</p> <p>The following information should be provided for each project listed to demonstrate the experience of the proposed resources:</p> <ul style="list-style-type: none"> • Project name or contract number; • Project description; 		<p>120</p>	<p>80</p>

<ul style="list-style-type: none"> · Description of tasks performed by the proposed resource (and exact duration of each task); · Overall duration of the project; · Project start and end dates (years and months) · Approaches/methodologies/tools/technologies used as part of the project; · Type of problems/solutions involved in the project; · Client name; and · Any other relevant information demonstrating the bid's compliance. 			
<p>I. Effector Management</p> <p>Recent (in the last 10 years) experience in the development of requirements, concepts, and solutions for effector management in the context of naval warfare operations.</p>	<ul style="list-style-type: none"> • The proposed resource has at least 60 months of average experience: 10 points • The proposed resource has at least 48 months but less than 60 months of average experience: 5 points • The proposed resource has at least 24 months but less than 48 months of average experience: 1 points • The proposed resource has less than 24 months of average experience: 0 point 	10	-
<p>II. Electronic Warfare</p> <p>Recent (in the last 5 years) experience in the development of requirements, models, and solutions for electronic warfare systems and softkill countermeasures.</p>	<ul style="list-style-type: none"> • The proposed resource has at least 24 months of average experience: 5 points • The proposed resource has at least 12 months but less than 24 months of average experience: 2 points • The proposed resource has less than 12 months of average experience: 0 point 	5	-
<p>III. Planning</p> <p>Recent (in the last 10 years) experience in the development of planning, scheduling and plan coordination algorithms and solutions.</p>	<ul style="list-style-type: none"> • The proposed resource has at least 60 months of average experience: 10 points • The proposed resource has at least 48 months but less than 60 months of average experience: 5 points • The proposed resource has at least 24 months but less than 48 months of average experience: 1 points • The proposed resource has less than 24 months of average experience: 0 point 	10	-
<p>IV. Threat Evaluation</p>	<ul style="list-style-type: none"> • The proposed resource has at least 60 months of experience: 10 points 	10	-

<p>Recent (in the last 10 years) experience in the development of requirements, concepts, and solutions for threat evaluation in the context of defence and security applications.</p>	<ul style="list-style-type: none"> • The proposed resource has at least 48 months but less than 60 months of average experience: 5 points • The proposed resource has at least 24 months but less than 48 months of average experience: 1 points • The proposed resource has less than 24 months of average experience: 0 point 		
<p>V. Plan Recognition</p> <p>Recent (in the last 5 years) experience in the development algorithms and systems for plan recognition, behaviour analysis, and/or risk analysis, with application to defence and security problems.</p>	<ul style="list-style-type: none"> • The proposed resource has at least 24 months of average experience: 10 points • The proposed resource has at least 12 months but less than 24 months of average experience: 5 points • The proposed resource has less than 12 months of average experience: 0 point 	10	-
<p>VI. Engageability Assessment</p> <p>Recent (in the last 5 years) experience in the development of requirements, concepts, and solutions for engageability assessment in the context of defence and security applications.</p>	<ul style="list-style-type: none"> • The proposed resource has at least 24 months of experience: 5 points • The proposed resource has at least 12 months but less than 24 months of average experience: 2 points • The proposed resource has less than 12 months of average experience: 0 point 	5	-
<p>VII. Constraint Satisfaction</p> <p>Recent (in the last 10 years) experience in the use of constraint satisfaction programming and constraint optimization programming techniques with applications to real-time resources scheduling problems.</p>	<ul style="list-style-type: none"> • The proposed resource has at least 60 months of average experience: 5 points • The proposed resource has at least 48 months but less than 60 months of average experience: 2 points • The proposed resource has at least 24 months but less than 48 months of average experience: 1 points • The proposed resource has less than 24 months of average experience: 0 point 	5	-
<p>VIII. Distributed Systems and Architectures</p> <p>Recent (in the last 5 years) in the design and implementation of distributed systems and architectures using the Data Distribution Service (DDS) standard.</p>	<ul style="list-style-type: none"> • The proposed resource has at least 24 months of average experience: 5 points • The proposed resource has at least 12 months but less than 24 months of average experience: 2 points • The proposed resource has at least 6 months but less than 12 months of average experience: 1 points 	5	-

	<ul style="list-style-type: none"> The proposed resource has less than 6 months of average experience: 0 point 		
<p>IX. System Integration</p> <p>Recent (in the last 10 years) experience in the integration of large scale software architectures and systems.</p>	<ul style="list-style-type: none"> The proposed resource has at least 60 months of average experience: 10 points The proposed resource has at least 48 months but less than 60 months of average experience: 5 points The proposed resource has at least 24 months but less than 48 months of average experience: 1 points The proposed resource has less than 24 months of average experience: 0 point 	10	-
<p>X. Complex Software /Systems Testing and Evaluation</p> <p>Recent (in the last 10 years) experience in test and evaluation of complex systems (systems with interacting heterogeneous components).</p>	<ul style="list-style-type: none"> The proposed resource has at least 60 months of average experience: 5 points The proposed resource has at least 48 months but less than 60 months of average experience: 2 points The proposed resource has at least 24 months but less than 48 months of average experience: 1 points The proposed resource has less than 24 months of average experience: 0 point 	5	
<p>XI. Software Development</p> <p>Recent (in the last 5 years) experience in software development.</p>	<ul style="list-style-type: none"> The proposed resource has at least 36 months of average experience: 10 points The proposed resource has at least 24 months but less than 36 months of average experience: 5 points The proposed resource has at least 12 months but less than 24 months of average experience: 1 points The proposed resource has less than 12 months of average experience: 0 point 	10	-
<p>XII. Naval Warfare Modeling & Simulation (M&S) Software</p> <p>Recent (5 years) experience in the modelling & simulation software used for naval warfare operations. The software include: Ship Air Defence Model (BAE Systems); Stage (Presagis) ; and SIMDIS (US NRL).</p>	<ul style="list-style-type: none"> The proposed resource has at least 36 months of average experience: 5 points The proposed resource has at least 24 months but less than 36 months of average experience: 2 points The proposed resource has at least 12 months but less than 24 months of average experience: 1 points 	5	-

	<ul style="list-style-type: none"> The proposed resource has less than 12 months of average experience: 0 point 		
<p>XIII. Natural Language Processing</p> <p>Recent (in the last 10 years) experience in the development of Natural Language Processing concepts and solutions, with applications to human-machine interaction and/or decision support.</p>	<ul style="list-style-type: none"> The proposed resource has at least 60 months of average experience: 5 points The proposed resource has at least 48 months but less than 60 months of average experience: 2 points The proposed resource has at least 24 months but less than 48 months of average experience: 1 points The proposed resource has less than 24 months of average experience: 0 point 	5	0
<p>XIV. Context-Aware Systems</p> <p>Recent (in the last 5 years) experience in the development of context-awareness concepts, solutions, and systems</p>	<ul style="list-style-type: none"> The proposed resource has at least 36 months of average experience: 5 points The proposed resource has at least 24 months but less than 36 months of average experience: 2 points The proposed resource has at least 12 months but less than 24 months of average experience: 1 points The proposed resource has less than 12 months of average experience: 0 point 	5	-
<p>XV. Game Theory</p> <p>Recent (in the last 5 years) experience in the development of concepts, solutions, and systems using game theory.</p>	<ul style="list-style-type: none"> The proposed resource has at least 36 months of average experience: 5 points The proposed resource has at least 24 months but less than 36 months of average experience: 2 points The proposed resource has at least 12 months but less than 24 months of average experience: 1 points The proposed resource has less than 12 months of average experience: 0 point 	5	-
<p>XVI. Agents and Multi-Agent System</p> <p>Recent (in the last 10 years) experience in the development of concepts, solutions, and systems based on agent and multi-agent paradigm.</p>	<ul style="list-style-type: none"> The proposed resource has at least 60 months of average experience: 5 points The proposed resource has at least 48 months but less than 60 months of average experience: 2 points The proposed resource has at least 24 months but less than 48 months of average experience: 1 points 	5	-

	<ul style="list-style-type: none"> The proposed resource has less than 24 months of average experience: 0 point 		
<p>XVII. Project Management</p> <p>Recent (in the last 10 years) experience in management of similar projects. By similar projects, it is meant R&D projects with defence and security applications and a value superior to \$200k.</p>	<ul style="list-style-type: none"> The resource successfully completed 3 or more projects: 10 points The resource successfully completed 2 projects: 5 points The resource successfully completed 1 project: 1 points The resource successfully completed 0 project: 0 point 	10	-

ATTACHMENT 3 EVALUATION OF PRICE

1 - Calculation of the price of the bid

The price of the bid will be calculated as follows:

The total evaluated price for the firm portion of the work
+
The total evaluated price for the task authorization portion of the work
=
Price of the bid.

2 – Total evaluated price for the firm portion of the Work

The total evaluated price for the firm portion of the Work will be calculated as follows:

Cost of labour for the firm portion of the work
+
Equipment, materials and Supplies (as per item 2 of Attachment 1)
+
Travel and living (as per item 3 of Attachment 1)
=
Total evaluated price for the firm portion of the Work

3 – Total evaluated price for the task authorization portion of the work

The total evaluated price for the task authorization portion of the Work will be calculated as follows:

Cost of labour for the task authorization portion of the Work
=
Total evaluated price for the task authorization portion of the Work

4 – Cost of labour

4.1 For the firm portion of the work, the cost of labour will be evaluated on the basis of the following estimated level of effort:

	[%]
Effector Management	4
Electronic Warfare	4
Planning	8
Threat Evaluation	3
Plan Recognition	6

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Engageability Assessment	2
Constraint Satisfaction	3
Distributed Systems and Architectures	5
System Integration	5
Complex Software /Systems Testing and Evaluation	5
Software Development	35
Naval Warfare Modeling & Simulation (M&S) Software	3
Context-Aware Systems	3
Game Theory	2
Agent & Multi-Agent Systems	2
Project Management	10
Total	100

Note : The estimated percentage of effort per labour category specified in the table are only estimates of the requirements provided in good faith for the purpose of evaluating the financial aspects of the bids and do not represent a commitment on behalf of Canada.

4.2 For the task authorization portion of the work, the cost of labour will be evaluated on the basis of the following estimated level of effort:

	%
IEffector Management	2
Planning	8
Threat Evaluation	2
Plan Recognition	3
Distributed Systems and Architectures	3
System Integration	4
Complex Software /Systems Testing and Evaluation	8
Software Development	40
Naval Warfare Modeling & Simulation (M&S) Software	5
Natural Language Processing	5
Context-Aware Systems	5
Game Theory	3
Agent & Multi-Agent Systems	2
Project Management	10
Total	100

Note : The estimated percentage of effort per labour category specified in the table are only estimates of the requirements provided in good faith for the purpose of evaluating the financial aspects of the bids and do not represent a commitment on behalf of Canada.

4.3 Calculation of labour costs

To establish labour costs, the effort available in terms of hours (see last column in Table 4.4.1, below) must be determined. The effort available for each resource category will be calculated as follows:

Effort available	=	[Total anticipated available funding] X [Approximate percentage use]
		[Average hourly rate for the resource category]

The cost of labour for a given category (for a given bid) is then obtained by multiplying the effort available by the average hourly rate provided for the given category (for a given bid).

Lastly, the cost of labour is calculated by adding the labour costs per category for a given bid.

For example:

- Anticipated funding for the firm portion of the work = \$1,574,254.47
- Percentage of use for "PM" = 10%
- If the average hourly rate for bid A = \$100, for bid B = \$75 and for bid C = \$90, then the average hourly rate for the resource category = \$88.33.

Therefore,

- Effort available $\$1,574,254.47 \times 0.10 / \$88.33 = 1782.24$ hours

and

- Labour costs for PM, bid A
= 1782.24 hours x \$100 = \$178,224.00
- Labour costs for PM, bid B
= 1782.24 hours x \$75 = \$133,668.00
- Labour costs for PM, bid C
= 1782.24 hours x \$90 = \$160,401.60

4.4 Sample calculations for the price of three bids

Table 4.4.1 - Sample calculations for three bids using the percentages of the firm portion of the work.
Note : The rates are provided as an example only and must not be interpreted as an indicator of the experience of the labour categories.

Resource category	% of use	Rate A	Price for A	Rate B	Price for B	Rate C	Price for C	Qty
Effector Management	4%	\$100,00	\$71,290.00	\$75,00	\$ 534,675.00	\$ 90,00	\$64,161.00	712.90
Electronic Warfare	4%	\$ 60,00	\$50,376.00	\$70,00	\$58,772.60	\$95,00	\$79,762.00	839.60
Planning	8%	\$90,00	\$133,348.50	\$ 75,00	\$111,123.75	\$90,00	\$133.348.50	1481.65
Threat		\$110,00	\$55,662.20	\$70,00	\$ 35,421.40	\$100,00	\$ 50,602.00	506.02

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Evaluation	3%							
Plan Recognition	6%							
		\$ 90,00	\$94,455.00	\$70,00	\$ 73,465.00	\$110,00	\$ 115,445.00	1049.50
Engageability Assessment	2%	\$110.00	\$30,560.20	\$105.00	\$29,171.10	\$125.00	\$34,727.50	277.82
Constraint Satisfaction	3%	\$120,00	\$62,970.00	\$70,00	\$ 36,732.50	\$80,00	\$41,980.00	524.75
Distributed Systems and Architecture	5%							
		\$125,00	\$107,331.25	\$80,00	\$ 68,692.00	\$70,00	\$60,105.50	858.65
System Integration	5%							
		\$100,00	\$87,459.00	\$85,00	\$ 74,340.15	\$85,00	\$74,340.15	874.59
Complex Software / systems testing and evaluation	5%							
		\$115,00	\$92,047.15	\$90,00	\$72,036.90	\$90,00	\$72,036.90	800.41
Software development	35%							
		\$125,00	\$590,327.50	\$110,00	\$ 519,488.82	\$100,00	\$472,262.00	4722.62
Naval warfare modeling & simulation software	3%							
		\$90,00	\$46,367.10	\$90,00	\$ 46,367.10	\$95,00	\$49,010.50	515.19
Context-aware systems	3%							
		\$95,00	\$48,072.85	\$95,00	\$ 48,072.85	\$90,00	\$45,542.70	506.03
Game theory	2%							
		\$90,00	\$30,911.40	\$90,00	\$ 30,911.40	\$95,00	\$32,628.70	343.46
Agent & multi-agent systems	2%							
		\$100,00	\$33,735.00	\$100,00	\$ 33,735.00	\$80,00	\$26,988.00	337.35
Project management	10%							
		\$120,00	\$171,736.80	\$110,00	\$ 157,455.10	\$100,00	\$143,141.00	1431.41
TOTAL :			\$1,557,473.95		\$1,930,460.67		\$1,496,081.45	

ANNEX A - STATEMENT OF WORK

GENERAL

Title

Naval Battle Management Command & Control (C2) Automation, Integration & Demonstration

Objective

The high-level objectives of this contract are:

- To explore, develop, integrate, and demonstrate emerging automation and coordination architectures, algorithms, concepts and technologies.
- To exploit and increase the readiness level of key technologies that will have a significant impact on, and provide valuable enhancements to the future conduct of Integrated Air and Missile Defence (IAMD) operations by the Royal Canadian Navy (RCN), and its surface platforms.

The following gives a non-exhaustive list of low-level objectives:

- Develop and integrate a set of battle management C2 capabilities that provide IAMD automation solutions and coordination measures for a naval task force;
- Develop an advanced naval force C2 testbed environment for Modelling and Simulation (M&S)-based stimulation, test, and evaluation of the different capabilities to be developed under this contract, and others developed externally to the contract
- Develop an agile and adaptive architecture enabling different force-level coordination approaches, with seamless transitions between modes, based on changes in the operational context
- Design and implement an architecture for the integration of the developed solutions and capabilities
- Integrate the developed architecture and capabilities/solutions with related capabilities/solutions and tools that have been/will be developed and used under separate activities
- Develop methodologies and define/select a set of measures of merit to evaluate the performance of the developed/used technologies and concepts;

- Prepare, conduct, and document demonstrations and experiments, in-lab and at sea, of the developed/used technologies and concepts; and
- Leverage, advance, mature, integrate, and demonstrate prototypes, solutions, capabilities, and concepts developments under previous and current DRDC/DND projects.

The work under this contract is in support of the CORALS (Combat Resource Allocation Support) prototype development and demonstration, as part of the Intergrated Air & Missile Defence (IAMD – 01ba) project.

Background

Scope

Increasingly, the RCN operates in littoral environments (Figure 1) where it has to cope with a wide range of threats originating from the sea, land, air, or a combination thereof. In these environments, multiple coordinated attacks of faster, stealthier and more manoeuvrable missiles, with different launch modes, guidance systems, and programmable flight paths are of particular concern. Countering these threats will require advanced IAMD and C2 capabilities for task force units. The latter must support force-level action through collaborative detection, recognition, identification, evaluation, and prosecution of threats.



Figure 1: Operational context

Littoral environment present a large number and high density of background objects and proximity of shore and civilian facilities, which result in short notice/range attacks, constraints/restraints on operations of the own force sensors and effectors, and a high risk of collateral damage/blue-on-blue fires.

The work to be conducted under this contract will consider both single-unit and force operations, and scenarios involving single threat as well as multi-threat and multi-axis coordinated attacks. A mix of sub-, super-, and hyper-sonic threats will be used

in the demonstration and experimentation scenarios. All “one on one”, “one on many”, “many on one”, and “many on many” situations will be considered.

Although the primary focus of the work will be on a national (Canadian) task force, scenarios involving a combined (*i.e.*, coalition) force will also be demonstrated. Multi-service (joint) operations may also be considered, but the focus of the work will be on the naval components/units. Both conventional (symmetric) and asymmetric threats are of interest.

Battle Management C2 Processes

The work to be conducted under this contract will address the battlespace geometry of the dispersed operating environment. The focus will be on unit and force-level *threat evaluation*, *engageability assessment*, and *effector (combat power) management* processes. It will address *Picture compilation (localization and recognition & identification)* only to the extent that is required to support the previous processes.

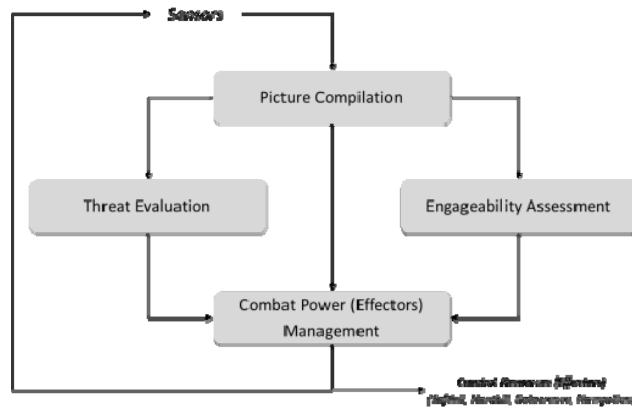


Figure 2: Battle Management C2 Processes

Picture Compilation

Picture compilation is the process of detecting, tracking, recognizing and identifying objects in the environment and disseminating the information within the force.

The two processes of interest to this contract under picture compilation are Recognition and Identification (R&I).

- Recognition can be defined as the determination of the nature of a detected object in terms of its domain (e.g., air, surface, etc.), category (e.g., anti-ship missile, fighter, etc.), sub-categories (e.g., C802, Mig-29, etc.), nationality/allegiance, and activity (e.g. reconnaissance, targeting, engagement, etc.).

- Identification can be defined as the assignment of a standard identity to an object. The possible identities are: Hostile, Suspect, Neutral, Friend, Assumed friend, and Unknown.

The R&I process uses multiple sources such as active and passive sensing systems, communications, and intelligence. But it also requires human interpretation.

Threat Evaluation

The threat evaluation process determines the extent to which a track within a certain Volume Of Interest (VOI) constitutes a threat to the own force or its mission. This determination is based on a priori (static, or slowly changing), as well as, dynamically inferred or acquired data/information. Threat evaluation results in a level of threat and priority associated with each non-friendly track within the VOI. The result, along with other information, is used by the effector management process to determine how and when to respond to each threat, in the event a response is deemed necessary.

The process of threat evaluation can be purely reactive, deliberative, or an adaptive combination of both:

- **Reactive Threat Evaluation:** uses a set of pre-defined quick reaction criteria. Any track within the VOI that satisfies a certain sub-set of these criteria is declared a threat, regardless of its allegiance and without further deliberation.
- **Deliberative Threat Evaluation:** uses a more elaborate reasoning to assess the intent, capability, and opportunity of non-friendly tracks within the VOI. The assessment of a track's intent is based upon observations from sensors and intelligence, as well as reference data/information. Its aim is to determine the goal and/or the plan of the track of interest. The capability is assessed by evaluating whether the track of interest has sufficient resources to achieve its goal or execute its plan. The opportunity is evaluated by verifying whether the environment provides the required preconditions for the track's plan to succeed. Threats are then rated and classified into categories, where elements within each category are further ranked based on their respective intent, capability, and opportunity.

Threat evaluation is a continuous process that must be conducted concurrently with others processes, such as engageability assessment and effector management. These processes may inform each other asynchronously, in any chronological order.

In the force context, threat evaluation must be conducted collaboratively, and local evaluations performed by different participating units must be coordinated and the information shared and merged into a common, coherent, and conflict-free evaluation.

Engageability Assessment

Engageability assessment is the process that consists in evaluating the feasibility of own ship/force's engagement options against non-friendly tracks within a certain VOI. This process does not generate engagement plans, but rather helps the effector management by eliminating candidate solutions that violate one or more constraints, and which therefore will not be feasible.

Several aspects need to be taken into consideration during this process, such as Rules Of Engagement (ROEs), mission goals and constraints/restraints, opportunity windows (range, time, etc.), blind zones, cut-out zones, ammunition availability, mutual interference, mutual support, readiness and performance of own sensors and effectors, etc. The assessment also considers the state and characteristics of the candidate targets and characteristics of their defensive weapons and likely tactics. In the force context, engageability assessment must be conducted collaboratively, and local assessments performed by different participating units must be coordinated and the information shared and merged into a common/coherent assessment, depending on the adopted coordination mode.

Effector Management

The effector management concerns the planning and coordination of actions against targets designated by the threat evaluation and engageability assessment processes, and the execution of these actions, up to and including the kill assessment. The actions consist of the use of deterrence on the one hand, and the use of effectors (combat resources) to defeat identified threats, on the other hand.

In the force context, effector management must be conducted collaboratively, and local planning performed by different participating units must be coordinated and the information shared and merged into a global, conflict-free engagement plan.

Aim

The aim of the demonstrated technologies/concepts is to improve mission effectiveness and increase the overall force survivability during operations by:

- Enhancing coordination and de-confliction in threat evaluation, engageability assessment, and effector management processes. This coordination will result in de-conflicted threat lists, and optimized engagement plans across the force.
- Ensuring coordination of force IAMD activities with self-defence actions of the different force units.
- Ensuring coordination of force IAMD with other warfare (e.g., anti-surface and anti-submarine) operations.
- Reducing interferences, fratricides, over-kills, and under-kills.

- Reducing ammunition expenditure (on targets already scheduled for engagement by other systems and units).
- Providing effective distributed engagements by optimizing and coordinating force-level engagement plans, considering all available force effectors, including hardkill and softkill.
- Using the right effector at the right time, with the right configuration, and against the right target.
- Balancing the air and missile defence burden across the force units.
- Minimizing the detect-to-engage sequence duration, which will provide more engagement opportunities and options, and will result in an expanded battlespace and reduced risks to the force and to the mission units, as the engagements are pushed farther from the own force.

Acronyms

The table below defines the abbreviations and acronyms used throughout this document.

Acronym	Definition
2GHKSK	Second Generation Hardkill/Softkill
ACA	Automation & Coordination Architecture
AM	Administrator Manual
C2	Command and Control
CFMWC	Canadian Forces Maritime Warfare Center
CEC	Cooperative Engagement Capability
CF	Canadian Forces
CONOPS	Concepts of Operations
CORALS	Combat Resources Allocation Support
COTS	Commercial Off-The-Shelf
DDS	Data Distribution Service
DG	Developer Guide
DND	Department of National Defence
DRDC	Defence Research & Development Canada
EAC	Engageability Assessment Capability
EMC	Effector Management Capability
GFE	Government Furnished Equipment
GFI	Government Furnished Information
GOTS	Government Off-The-Shelf
GSM	Government Supplied Material
IAMD	Integrated Air & Missile Defense
M&S	Modelling & Simulation
PRM	Progress Review Meeting
R&I	Recognition & Identification

RCN	Royal Canadian Navy
ROE	Rules Of Engagement
RTI	Real-Time Innovations
SADM	Ship Air Defence Model
SDD	Software Design Document
SOW	Statement of Work
SSC	Stimulation & Simulation Capability
TAEC	Test, Analysis, and Evaluation Capability
TEC	Threat Evaluation Capability
TR	Technical Report
UM	User Manual
UML	Unified Modeling Language
USV	Unmanned Surface Vehicle
VOI	Volume Of Interest
VTC	Video Tele-Conferencing

APPLICABLE DOCUMENTS (references)

Government Furnished Information

The source code and technical documents of the prototypes/solutions/systems related to this contract and owned by Canada will be provided to the contractor on contract award only. This restriction is required because these code/documents are either sensitive with limited distribution or classified, and therefore cannot be released publicly.

A non-exhaustive list of Government Furnished Information (GFI) is given below.

- IAMD scenarios and vignettes scripts, description, and related documentation
- Battle management C2 Concept of Operations (CONOPS) description and related documentation
- Code and documentation of the existing DND/DRDC prototypes, systems, and solutions, when deemed necessary by the Technical Authority
- Existing operational and system requirements and specifications database, and related documentation

Note that all GFI will be provided in its language of original publication only.

Previous Related Contracts

DRDC, in collaboration with various partners, has been conducting different activities related to IAMD battle management C2. Capabilities, concepts,

technologies, solutions and prototype systems, developed under these activities and other DRDC/DND projects, will be made available to the Contractor, along with the corresponding documentation, when deemed necessary by the Technical Authority. Those capabilities, concepts solutions, and prototype systems will have to be used as the starting point, leveraged, extended, matured, integrated and demonstrated to carry out the contract.

If, in the implementation plans of the different tasks provided by the Contractor, the latter chooses to deviate from existing capabilities, concepts, technologies, solutions and prototype systems, his choice must be supported by a comparative cost-benefit analysis and risk assessment, and submitted to the Technical Authority for approval.

The list of past and ongoing contracts on which the current Work must build on, leverage from, and extend is:

- W7701-4-3544 (Thales Canada) : Above Water Warfare Threat Evaluation & Weapons Assignment Command Decision Support Demonstrator
- W7701-7-2493 (CAE PS): Decision Support Requirements For Force-Level Threat Assessment
- W7701-7-4409 (Menya Solutions, Thales Canada): Threat Evaluation and Engageability Assessment Capability for Naval Task Group Operations
- W7701-10-2780 (Fujitsu Canada, Menya Solutions): Cooperative Effective Engagement
- W7701-10-3613 (Fujitsu Canada, Menya Solutions): Improvement of Combat Resource Allocation Support (CORALS) Planner

SCOPE OF THE WORK

The contract consists of a firm portion (Tasks 1 to 7) and a task authorization portion (Tasks 8 to 15), for which the work will be on an as-and-when-requested basis.

The work to be performed under the Task Authorization process includes activities that can be combined to form tasks authorizations. A Task authorization may refer to more than one task/activity. Tasks and activities may be repeated multiple times over the course of the Contract.

Description of Tasks 1 to 7 includes a list of the firm work, the earliest start date, the deliverables, and the latest deadline for completion.

The Contractor must design, develop, demonstrate and deliver a set of battle management C2 capabilities and the corresponding Modelling & Simulation (M&S)-based environment. These systems must be fully functional and operational individually and in an integrated manner, as specified in the task description below.

The deliverables of the contract are briefly described in Section 4.

Assumptions & Constraints

The Contractor must take into consideration the following assumptions and constraints during the conduct of the work.

- The Contractor must take as starting and leverage from the different existing DRDC capabilities, solutions, tools, and knowledge
- Data/information used by the different battle management processes is subject to different types of imperfection (uncertainty, incompleteness, etc.), and may be missing occasionally. In the latter case, the Contractor must provide solutions that take into consideration data/information imperfection.
- The different components/capabilities to be developed under this contract must:
 - Be integrated and work harmoniously with the other components/capabilities of the system and the overall system architecture;
 - Allow for input from/interaction with human operators;
 - Be implemented within the automation and coordination architecture developed under Task 4 and the corresponding command structures and coordination modes; and
 - Run in real-time.
- The Contractor must use Data Distribution Service (DDS) standard to integrate the different components/capabilities within the overall system. The Real-Time Innovations (RTI) DDS implementation of the standard has already been chosen and must be used. Other solutions/technologies can be added if deemed required by the Contractor and approved by the Technical Authority.
- The Contractor must use an iterative approach for the development of each component/capability, as the exact nature of the required functionalities may be impacted by the development of the other components/capabilities
- For the development of different components/capabilities, the Contractor must use known tools, programming languages, standards, and operating systems
- The work described in the firm part of the contract concerns primarily the algorithms and the architecture. However, when deemed required by the Technical Authority, and in order to maintain the overall system consistency and integrity, the contractor be requested to address different aspects of Operator-Machine Interface, Human-Machine Interaction, and Collaboration

Firm Part of the Contract

Task 1: Project Management

The contractor must, throughout the duration of the contract, plan and hold a series of meetings and produce documents and reports related to project technical, managerial, and financial aspects of the project. Note that this task does not cover the work related to the Activities conducted under the 'Task Authorization' (TA) part of the contract.

The following lists the categories of meetings to be held:

- **Kick-Off Meeting:** Within one week of Contract Award, the contractor must organize a kick-off meeting to go over the proposed plan.
- **Progress Review Meetings (PRMs):** Regular PRMs must be held throughout the duration of the contract. As a general rule, PRMs should be scheduled once per month, but may be advanced or delayed as required to coincide with the completion of a major milestone, design review, or product review. As a minimum, the PRMs must include a presentation outlining the items detailed in the progress review report, a review of action items that arose from the previous PRM, a review of submitted reports and the selection of the date, time and venue of the next PRM. At least ten (10) working day notice will be given prior to scheduling a PRM.

The Contractor must be responsible for preparing the PRM agenda as well as the recording and distribution of PRM minutes. The content of minutes must cover as a minimum a record of attendees, outline of discussions held and action items. Minutes must be submitted to the Contract Technical Authority according.

Unless specified otherwise, location for PRMs will be DRDC Valcartier; however the venue may be at the Contractor's site or elsewhere (ex: another DRDC lab) if so warranted by the situation at hand, as agreed upon between the Contractor and the Technical Authority. In the event the Contractor or any of his sub-contractors conduct some of the work outside DRDC Valcartier premises, the remote sites used must be suitably equipped for Video Tele-Conferencing (VTC) for participation in PRMs as required.

- **Design Review Meetings:** This series of meetings will involve DRDC technical and management team members and the Contractor's appropriate personnel. The meetings aim at reviewing the design of architectural items, capability, or a key component upon completion of the design of each major release. The Contractor will be responsible for establishing the agenda, providing the minutes, and producing the activity report of the design review meetings.

- **Product Review Meetings:** This series of meetings will involve DRDC technical and management team members and the Contractor's appropriate personnel. The meetings aim at reviewing the delivery of full functional major release of architecture, capability, or a key component after a series of development iterations and tests. The Contractor will be responsible for establishing the agenda, providing the minutes, and producing the activity report of the product review meetings.
- **Close-out Meeting:** The Contractor must plan and hold a close-out meeting during which the objectives of the firm part of the contract will be reviewed, with the Technical Authority, and matched with the achievements. Also, major conclusions and lessons learned must be presented and discussed. The Contractor must also present the results of the firm part of the contract and demonstrate working versions of the developed capabilities to Canadian Forces (CF) and DND representatives.

The Contractor will be responsible for establishing the agenda and providing the minutes, and producing the report of the close-out.

Task Start Date: at the contract award

Task Latest End Date: 31 march 2016

Task Deliverables

Deliverables	Deadline
Progress review reports	1 week before each PRM
Activity reports	2 weeks after the end of the activity
Meeting agenda	1 week before the meeting
Meeting minutes	1 week after the meeting
Close-out report	2 weeks before the end of the contract

Task 2: Stimulation & Simulation Capability (SSC)

The Contractor must upgrade, improve, deploy, demonstrate, and document the existing DRDC SSC.

The SSC is responsible for providing:

- Input data (dynamic and a priori) required for the stimulation of the different battle management C2 capabilities (see Tasks 5 to 7). The SSC must allow stimulation using real operational data (live or recorded), as well as, simulated data, to be generated by the capability itself using state-of-the-art tools, such as Ship Air Defence Model (SADM). In the latter case, the capability must allow scripting/generation of various scenarios for single-ship and force operations. Generated scenarios will be used to drive the simulation of the constitutive elements of the synthetic operational

environment, such as threats, own force platforms and resources, as well as their interactions with each other and with the surrounding environment.

- The synthetic environment that allows for closing the loop on the battle management C2 capabilities, by simulating their results, up to engagements and kill assessment.

Due to the highly dynamic context under which the target system will operate, and to the nature of the supported IAMD functions, the SSC must enable the different capabilities and software tools (Commercial Off The Shelf - COTS, Government Off The shelf - GOTS, custom) to interact in real-time, in an asynchronous manner. Additionally, given that force operations are geographically dispersed by nature, the SSC must allow for distribution of simulation/stimulation.

The scope of the operations to be supported by the SSC ranges from single-ship self-defence to force IAMD performed by a task group, affecting the number and the configuration of software tools and capabilities required. Furthermore, the system will be used in different modes (e.g., operational, tabletop, training), which will require distinct configurations, using the full suite or only a subset of capabilities and software tools. In order to satisfy these constraints, the SSC architecture must use and respect open architecture requirements such as flexibility, modularity, and scalability.

The SSC must interface seamlessly with all the system components and capabilities (Task 3 to Task 7), a set of COTS/GOTS and components developed externally to this contract, as well as the combat system of the RCN ships. The SSC architecture must also facilitate the integration of any future component.

The Contractor also must develop, integrate, and/or use various visualization tools to display the evolution of the scenarios and to assess the effectiveness of the force responses to threats.

The Contractor must be carried out the following sub-tasks:

- Design the SSC that provides a distributed modelling and simulation environment for the stimulation of, and closing the loop on, battle management C2 capabilities
- Develop an incremental implementation plan and a test strategy for the SSC
- Implement the SSC according to the plan
- Develop a data model, based on known standards, for the exchange of data between the components of the SSC, and between the latter and other capabilities
- Interface the SSC with the solution used to connect to the ship combat system (and adapt this solution if required), in order to stimulate the battle management C2 capabilities with real operational data

- Script scenarios and vignettes using a scenario generator and/or computer generated forces tool(s). The description of the scenarios and vignettes to be implemented in this task will be provided by the Technical Authority
- Model all scenario elements at both the Classified and Unclassified levels of fidelity
- Integrate the SSC with all other capabilities of the system
- Deploy the SSC in DRDC Lab(s)
- Produce documentation (see deliverables below)

Task Start Date: 1 week after contract award

Task Latest End Date: 31 march 2016

Task Deliverables:

Deliverables	Deadline
SSC Software Design Document (SDD)	Draft: 2 weeks after each major release Final: 15 march 2016
SSC Developer Guide (DG)	Draft: 2 weeks after each major release Final: 15 march 2016
SSC Administrator Manual (AM)	Draft: 2 weeks after each major release Final: 15 march 2016
SSC Demo & Presentation	Major release: every 6 months Final: 15 march 2016
SSC Source code, test code, and executable	Monthly builds Major release: every 6 months Final: 15 march 2016
Scenario scripts and model files	Draft: every 6 months Final: 15 march 2016

Task 3: Test, Analysis, and Evaluation Capability (TAEC)

The Contractor must conduct the necessary work to design, implement, integrate, test, deploy, demonstrate, maintain and document TAEC.

The TAEC must allow for online and offline testing and performance evaluation of the overall system, with a focus on battle management C2 capabilities. These tests and evaluations must use a set of objective metrics to validate operational and system requirements and quantify the effectiveness of the proposed solutions.

The Contractor must develop, as part of the TAEC, automated collection of (but not restricted to) data transiting on the middleware, specific internal data related to algorithms, and operator commands. The TAEC must record and allow replaying all data for offline analysis of any system runs. The TAEC support scripting and run Monte Carlo type simulation and analysis, by allowing automatic (random) and manual variations of key parameters.

In order to better assess the performance of the capabilities under test, the Contractor must develop, integrate and use multiple and innovative visualization means. The TAEC will also have to provide the automated production of key parts of test and evaluation reports, such as generation and export of graphics and curves.

The contractor must carry out the following sub-tasks:

- Design the TAEC
- Develop an incremental implementation plan and a test strategy of the TAEC
- Design and implement automated data collection, recording and reduction functionalities
- Design and implement automated analysis functionality. This functionality must include a tool for the management of the test and evaluation sessions, allowing the user to specify, among other things, the data to be analyzed and the metrics to be used
- Design and implement the visualisation functionality
- Integrate the TAEC with all other capabilities of the system
- Deploy the TAEC in DRDC lab(s)
- Produce documentation (see Deliverables section below)

Task Start Date: 1 week after contract award

Task Latest End Date: 31 march 2016

Task Deliverables:

Deliverables	Deadline
TAEC SDD	Draft: 2 weeks after each major release Final: 15 march 2016
TAEC DG	Draft: 2 weeks after each major release Final: 15 march 2016
TAEC User Manual (UM)	Draft: 2 weeks after each major release Final: 15 march 2016
TAEC Demo & Presentation	Major release: every 6 months Final: 15 march 2016
TAEC Source code, test code, and executable	Monthly builds Major release: every 6 months Final: 15 march 2016

Task 4: Automation & Coordination Architecture (ACA)

The Contractor must develop an architectural framework (or adapt an existing one) that will allow for seamless and efficient automation and coordination of unit-level and force-level activities and processes related to IAMD battle management C2.

In order for the different battle management C2 capabilities to meet the constraints of the evolving operational context, the Contractor must build an agile and context-aware framework that allows seamless changes in coordination modes on the basis of operational parameters that hold at any given point in time. The organizational structure and the coordination modes must vary from fully centralized to completely independent. They can be deliberately chosen by the operator, but they may also be dictated by changing operational factors such as latency, bandwidth availability, reaction time available, force homogeneity, and emission control.

The use of such an agile force command structure will offer the ability to implement flexible responses, adaptable to the current context of operations and to the needs of the operators, and allow for a graceful degradation of the unit and force defence effectiveness, under increasing constraints/restraints.

The contractor must carry out the following sub-activities:

- Design an agile/context-aware/adaptive ACA that allows for the characterization and implementation of a broad range of command structures and coordination modes
- Propose an incremental implementation and test strategy for the ACA
- Implement the ACA according to the plan
- Design and implement coordination algorithms and solutions that offer various modes, ranging from a fully centralized approach to a completely independent mode of operations, for all the battle management C2 processes, with focus on *threat evaluation, engageability assessment, and effector management*.
- Design and implement a solution that monitors a set of key parameters in the operational environment and detects/recognizes changes that may affect significantly the command structure/coordination modes.
- Design and implement an overarching solution that adaptively combines/selects appropriate modes based on the detected changes in operational factors and user preferences
- Assess and document the impact of the different command structures on the different battle management algorithms and solutions (e.g., conflict resolution, synergy exploitation, additional communication requirements, etc.).

- Document, in a technical report, the assessment of the impact of the command structures and coordination modes on the performance of battle management algorithms and solutions
- Produce documentation (see deliverables below):

Task Start Date: 1 week after contract award

Task Latest End Date: 31 march 2016

Task Deliverables:

Deliverable	Deadline
ACA SDD	Draft: 2 weeks after each major release Final: 15 march 2016
ACA DG	Draft: 2 weeks after each major release Final: 15 march 2016
ACA Demo & Presentation	Major release: every 6 months Final: 15 march 2016
ACA Source code, test code, and executable	Monthly builds Major release: every 6 months Final: 15 march 2016
Command structure impact assessment Technical Report (TR)	Draft: 1 Feb. 2016 Final: 15 march 2016

Task 5: Effector Management Capability (EMC)

The Contractor must develop, integrate, and demonstrate an automation-based capability that allows to conduct both unit-level and force-level effector management.

The EMC must, at least, offer the following algorithms/solutions:

- Automated response generation against multiple and multi-axis threats, for single-ship and force operations.
- Engagement planning: select the nature of the actions to be applied against targets;
- Engagement scheduling: establish the exact start/end time of planned actions; and
- Engagement coordination: manage interactions, such as hardkill/hardkill, hardkill/softkill, and softkill/softkill interactions.
- Multi-Target / Multi-ship softkill solution, starting from the DRDC Second Generation Hardkill Softkill (2GHKSK) softkill solutions
- Plan execution monitoring and contingencies management
- Plan adaptation and revision

- Outcome/battle damage assessment
- Force-level response plan merging, coordination and dissemination
- Evaluation, planning and coordination of units/task force posture and navigation in support to the force IAMD operations. Such solutions allow reducing signature, hiding, minimizing blind zones/cut-out zones, minimizing blue-on-blue fires, damages, etc.

The Contractor must carry out the following sub-tasks:

- Design the EMC
- Propose an incremental implementation and test strategy for the EMC
- Implement the EMC according to the plan
- Integrate the EMC with the other capabilities
- Test the EMC
- Deploy the EMC
- Demonstrate the EMC
- Produce documentation (see deliverables below)

Task Start Date: 1 week after contract award

Task Latest End Date: 31 march 2016

Task Deliverables:

Deliverable	Deadline
EMC SDD	Draft: 2 weeks after each major release Final: 15 march 2016
EMC DG	Draft: 2 weeks after each major release Final: 15 march 2016
EMC AM	Draft: 2 weeks after each major release Final: 15 march 2016
EMC UM	Draft: 2 weeks after each major release Final: 15 march 2016
EMC Demo & Presentation	Major release: every 6 months Final: 15 march 2016
EMC Source code, test code, and executable	Monthly builds Major release: every 6 months Final: 15 march 2016

Task 6: Engageability Assessment Capability (EAC)

The Contractor must develop, integrate, and demonstrate the EAC to allow conducting both unit-level and force-level engageability assessment.

The EAC must, at least, offer the following algorithms/solutions:

- Non-predictive (myopic) engageability assessment
- Predictive engageability assessment
- Adaptive engageability assessment that combines myopic and predictive analysis, based on the operational situation
- Recommendations for actions to improve engageability
- Force-level engageability assessment combination, consolidation, and dissemination

The contractor must carry out the following sub-tasks:

- Design the EAC
- Propose an incremental implementation and test strategy for the EAC
- Implement the EAC according to the plan
- Integrate the EAC with the other capabilities
- Test the EAC
- Deploy the EAC
- Demonstrate the EAC
- Produce documentation (see Deliverables section)

Task Start Date: 1 week after contract award

Task Latest End Date: 31 march 2016

Task Deliverables:

Deliverable	Deadline
EAC SDD	Draft: 2 weeks after each major release Final: 15 march 2016
EAC DG	Draft: 2 weeks after each major release Final: 15 march 2016
EAC AM	Draft: 2 weeks after each major release Final: 15 march 2016
EAC UM	Draft: 2 weeks after each major release Final: 15 march 2016
EAC Demo & Presentation	Major release: every 6 months Final: 15 march 2016
EAC Source code, test code, and executable	Monthly builds Major release: every 6 months Final: 15 march 2016

Task 7: Threat Evaluation Capability (TEC)

The Contractor must develop, integrate, and demonstrate TEC to allow conducting both unit-level and force-level threat evaluation.

The TEC must, at least, offer the following algorithms/solutions

- Reactive threat evaluation
- Deliberative threat evaluation
- Adaptive threat evaluation that combines reactive processing with deliberation, based on the operational situation
- Threat categorization, rating and ranking that use the results of both reactive and deliberative threat evaluations
- Force-level threat evaluation combination, consolidation, and dissemination

The TEC must also allow the threat evaluation to be conducted with respect to various (arbitrary) stationary and/mobile reference points.

The contractor must carry out the following sub-tasks:

- Design the TEC
- Propose an incremental implementation and test strategy for the TEC
- Implement the TEC according to the plan
- Integrate the TEC with the other capabilities
- Test the TEC
- Deploy the TEC
- Demonstrate the TEC
- Produce documentation (see Deliverables section)

Task Start Date: 1 week after contract award

Task Latest End Date: 31 march 2016

Task Deliverables:

Deliverable	Deadline
TEC SDD	Draft: 2 weeks after each major release Final: 15 march 2016
TEC DG	Draft: 2 weeks after each major release Final: 15 march 2016
TEC AM	Draft: 2 weeks after each major release Final: 15 march 2016
TEC UM	Draft: 2 weeks after each major release

	Final: 15 march 2016
TEC Demo & Presentation	Major release: every 6 months Final: 15 march 2016
TEC Source code, test code, and executable	Monthly builds Major release: every 6 months Final: 15 march 2016

Task Authorization Part of the Contract

Task 8: Data Reduction/Filtering and Recognition & Identification (R&I)

The capabilities to be developed in the firm part of the contract (Tasks 2 to 7) will be simulated using a combination of real and simulated data. Data, particularly real data, contain a large amount of false or duplicate tracks, with quality that may compromise the result of the subsequent processes (threat evaluation, engageability assessment, and effector management). The performance of the battle management C2 capabilities developed under Tasks 5 to 7 depends heavily on the quantity and the quality of the track data they receive as input.

Under this task, the contractor must design, implement, integrate, test, and document solutions (algorithms and a set of decision aids) that will

- help reduce the quantity of undesired tracks and increase the quality of the retained ones, before sending them as input to the different battle management C2 capabilities
- support the process of R&I

Note that the problems of data reduction/filtering and R&I will be addressed only to the extent that is needed to allow the proper functioning of the main battle management C2 capabilities developed under Tasks 5 to 7 of this contract.

The contractor must:

- Characterize the data reduction/filtering and R&I processes according to the input sources, the objects under consideration, the doctrines, the required outputs, the hardware system's limitations and the context of operations
- Identify and characterize the areas where human interaction is required, or needed
- Develop data reduction/filtering and R&I solutions for single ship, as a first step, and then for force operations. The developed solutions will have to adapt to the different possible force command structures (see Task 4).
- Integrate the data reduction/filtering and R&I solutions with other system components and capabilities

- Analyze and document the performance of the developed solutions

Expected deliverables: SDD, DG, AM, UM, TR, Code (source & executable), Task management deliverables

Task 9: Architecture and Capabilities Extension and Improvement

Under this task, the contractor must identify, recommend, design, implement, test, and document modifications, extensions and improvements to the developed capabilities, architecture and solutions. These modifications, extensions and improvements may be

- Requirements for the conduct of in-lab and at-sea demonstration and experimentation events, derived from risk reduction activities in preparation of the demonstration and experimentation events, or
- Recommendations derived/lessons learned from demonstration and experimentation events themselves.
- Requirements for addition and integration of new/improved components (COTS, GOTS or custom components) to augment the functionalities of the system developed under this contract.
- Modifications, extensions and improvements originating from the military sponsor, in support to at-sea and exploitation activities.
- Requirements to allow the developed solutions/capabilities to support models and configurations of new ships, sensors, effectors, links, and threats. This includes (but is not limited to):

Existing fielded systems, as well as prototypes in development, such as Unmanned Surface Vehicle (USV)-borne off-board decoys;

Threats and threat models, such as ballistic missiles;

Models/tools to characterise Electro-Magnetic wave propagation and its impact on sensor operations and performance; and

Communication/link system or model, e.g., Cooperative Engagement Capability (CEC).

- Requirements to support operations of combined (coalition) forces. Such extension may become necessary in the event that the developed solutions/capabilities are installed and tested in a configuration involving allied ships (e.g., participation in RIMPAC exercise, or other multi-national exercises).

Expected deliverables: SDD, DG, AM, UM, Models, Code (source & executable), and Task management deliverables

Task 10: Integration with Local, National, and International Facilities

The system developed under this contract may be used in various collaboration initiatives. These initiatives may be local to DRDC Valcartier, have a national span implicating other DRDC labs and DND organizations, or even involve international partners.

Under this task, the contractor must integrate, test, and document of the system developed under this contract with the facilities, tools, and solutions related to the collaboration activities. Depending on the specific interoperability requirements of each activity, the integration may concern all or a subset of the capabilities developed in this contract. It is expected that the facilities will use different technologies, architectures and tools. The integration work may therefore require the development of additional components such as gateways.

Expected deliverables: SDD, DG, AM, UM, Code (source & executable), Task management deliverables

Task 11: Performance Evaluation

Under this task, the contractor must use the TEAC, developed under Task 3, to plan, conduct, and document the performance evaluation of the battle management C2 capabilities (including their architecture, algorithms, and concepts) developed in this contract.

The contractor must develop an evaluation methodology and define and/or select a set of metrics. The contractor must use and refine, if deemed necessary, existing scenarios (to be provided as GFI) by the Technical Authority.

Expected deliverables: TR, Scenarios, Task management deliverables

Task 12: Lab Activities, Demonstrations & Experiments

Under this task, the contractor must install, configure and update the different hardware and software components required for the conduct of the different projects activities. Examples of activities include: risk reduction trials (in lab or at sea), sea trials, demonstrations, system experiments, human factors experiments, lab activities, and scientific meetings and events. When applicable, DRDC will provide experimentation and demonstration plans and additional details, and prioritize the work activities. The nature and the number of these activities will be detail in the task authorization.

Expected deliverables: Activity Report, Task management deliverables

Task 13: Embedded Simulation

Under this task, the contractor must explore, design, implement, test, and document technologies and algorithmic solutions that will enable the use of embedded M&S to:

- Support the conduct of unit and force battle management C2

- Support virtual time/space projection of the force into the theater of operations
- Support war gaming and what-if analysis in IAMD operations

The Contract must integrate the solutions developed under this task with the other components/capabilities of the system and demonstrate that they work harmoniously.

Expected deliverables: SDD, DG, AM, UM, TR, Models, Code (source & executable), Task management deliverables

Task 14: Force Connectivity Solutions

Under this task, the contractor must explore, compare, recommend, develop new / adapt existing, implement, and document connectivity solutions among the force units. This solution must provide a mechanism that allows, during sea trials, the different participating units to exchange real-time tactical data/information and coordinate their IAMD activities.

The contractor is not required to develop a full-fledged tactical link solution, but rather to build a solution that offers a minimal set of functionalities that support the at-sea demonstration of the technologies and solutions developed under the different tasks of the contract.

Expected deliverables: SDD, DG, AM, Code (source & executable), Task management deliverables

Task 15: Natural Language Processing

Under this task, the contractor must design, develop, test, and document a capacity to enable the system to process operator input in natural language as speech or text. This capability must allow human operators to provide information to the computer-based system or make various requests.

The Contract must integrate the solutions developed under this task with the other components/capabilities of the system and demonstrate that they work harmoniously.

Expected deliverables: SDD, DG, UM, TR, Code (source & executable), Task management deliverables

REPORTS AND OTHER DELIVERABLES

This section briefly describes the deliverables, which apply to both the Firm and the Task Authorization parts of the Contract. For the Firm part, the detailed content requirement for each deliverables will be provided by the Technical Authority during the kick-off meeting or at the start of the corresponding task. For the Task Authorization part, the detailed content requirement for each deliverables will be provided by the Technical Authority once the Task Authorization of the corresponding task/activity is signed.

Progress Review Reports: This report details the progress of the contractor's work as required by the contract and the Statement of Work (SOW). The Progress Report must document in detail the Contractor's progress in relation to the approved plan. It must provide the status of the work achieved versus that planned during the period covered by this progress report, and highlight problem areas and the actions being taken to provide corrective measures.

Activity Reports: The activity report must document discussions, feedback, results, and decisions resulting from ad hoc technical activities. These activities include, but are not limited to: design review; delivery review; demonstrations; and experimentations.

Meeting Agenda: The agenda will provide all attendees with the structure and schedule of the different meetings (kick-off, progress review, design review, delivery review and close-out) as well as the preparatory work and decisions required from the meeting or review.

Meeting Minutes: Minutes of all meetings taking place during the course of the project must be used to record the business of the meeting and provide a formal record of the decisions made as a result of the meeting.

Close-out Report: The Close-out Report must summarize the work done during the contract by the contractor. The report must review the objectives of the firm part of the contract and match them with the achievements. Also, major conclusions must be drawn and lessons learned documented. Based on the results of the main part of the contract, the contractor must make recommendations, in the report, about exploitable concepts, technologies and solutions and their characteristics.

Software Design Document (SDD): The SDD captures the detailed design of an architecture, capability or system software component. SDD must include an incremental implementation plan. Iterative versions of the SDD will serve as an implementation roadmap for the software development. The SDD must include the design decisions and all details needed to implement/understand each capability/component. The document must also include the physical architecture, and hardware, software and interface specifications, when applicable. Each of the main capabilities/components must be addressed by a specific SDD. The SDD must be updated for each major release of the corresponding component/capability.

Developer Guide (DG): The developer guide contains all the information that a new developer needs in order to be able to read, understand, modify, and, test the code of the target capability/component. The DG must be updated for each major release of the corresponding component/capability.

Administrator Manual (AM): The AM contains all the information a new system administrator needs in order to be able to install, configure and run the whole system, or part thereof, from scratch onto new environments. The AM must be updated for each major release of the corresponding component/capability.

User Manual (UM): The UM contains all the information that the end user needs in order to be able to use the whole system, or part thereof for the first time. The UM

must to be updated for each major release of the corresponding component/capability.

Technical Report (TR): The TR documents and discusses scientific and technical work and the corresponding results and present recommendations.

All deliverables must be sent to Director DRDC, Valcartier Research Center,

Attention:
(to be completed by Canada at Contract award)
2459 de la Bravoure Road,
Quebec City, Quebec,
G3J 1X5, Canada

Note: Deliverable and/or material must be received through DRDC Valcartier supply section.

Publications and Standards

The language for all deliverables is English and all reports will be in Word format. An Abstract must be submitted with each report. Final deliverables must be provided in soft copy form (USB Stick, CD, email, or shared space) at the end of the corresponding task. Exceptions to these instructions require the approval of the Technical Authority.

Reports must be formatted in accordance with DRDC standard. The Technical Authority will provide the Contractor with publications standards. Particular attention must be given to the following requirements:

- The writing style and language are clear and understandable;
- The document is relevant and addresses the technical requirements;
- The document is well organized, logically, and technically correct;
- The interpretations and conclusions are sound and justified by the results;
- The graphical illustrations are clear, relevant, and follow high quality standards.

4.2 Publications

Any manuscript for publication in magazines, newspapers or other, including presentation summaries or other types of publication, must be submitted to the Technical Authority for revision and approval at least ninety (90) days before the date of the presentation or publication. An explicit reference regarding federal government funding must be included, and it must be clearly mentioned that the content is the authors' responsibility. The Technical Authority will provide a written objection if there are specific elements (e.g., audience) that are not in the federal government's best interests.

GOVERNMENT SUPPLIED MATERIAL (GSM)

None.

GOVERNMENT FURNISHED EQUIPMENT (GFE)

- Laptops
- Screens
- Tablets
- Software (COTS and GOTS)

SPECIAL CONSIDERATIONS

Software Engineering Process Requirements

In order to make sure that the construction of the software is well on its way, an iterative and incremental development approach shall be implemented. These iterations shall have clear objectives and will take place on a monthly basis.

At the end of each iteration (month), the contractor shall demonstrate a new build and prove that the software is working and that it meets objectives of the iteration. For doing so, test run results shall be available for the Technical Authority to assess success of high level tests (such as acceptance and integration tests) and low level tests (such as unit tests). The relationship between the test results and the corresponding requirements should be clearly stated.

The software engineering process supporting the development shall be inspired by processes and principles and best practices such as Agile Software Development. The Unified Modeling Language (UML) shall be the preferred notation used for design and documentation. This will ensure that all team members have a common way to communicate and understand design artefacts.

Travel

The Contractor may be required to travel to the following locations to support the activities:

- Quebec City, Quebec: if the proposed resources of the Contractor team are not located in Quebec City (**for most firm tasks**)
- Halifax, Nova Scotia (for most firm tasks)

Travel requirements for the Task Authorization part of the contract will be defined as part of the call-up of each task.

Documentation handling

All documentation made available to the Contractor must be returned to DRDC at the end of the contract or earlier if so requested.

WORK LOCATION

The scientific team of the project supporting the Work is situated mostly in Quebec City and the client community in Halifax.

Although the majority of the non-sensitive work of the firm part of the contract can be conducted at the Contractor's facility, it is required that least at 25% of the work (excluding Task 1) be conducted at DRDC Valcartier, with certain parts to be conducted at CFMWC in Halifax.

Furthermore, all work in support to existing infrastructure, experimentation and/or requiring access to sensitive/CLASSIFIED material must be conducted at DRDC Valcartier or the DND facility identified by the Technical Authority. The contractor will, as needed, have to have access to DRDC and other DND facilities, and therefore must be cleared to access the sites.

Work location requirements for the Task Authorization part of the contract will be defined as part of the call-up of each task.

ADDITIONAL INFORMATION

Security Classification

Several of the capabilities, algorithms, and solutions to be developed will be based on classified doctrine and tactics documents and therefore will be inherently classified. In addition, the use of classified data and tactical scenarios will also be required to support the design, development, and testing of various components of the target system. Therefore, certain categories of resources must have at least a SECRET clearance and be Canadian. For detail of the categories, see the attached *Security Requirement Checklist (SRCL) Supplemental Security Guide*.

ANNEX B - BASIS OF PAYMENT

(to be completed by Canada at Contract award)

FOR THE FIRM PORTION OF THE WORK (TASKS 1 to 7)

1. **LABOUR** : Firm all-inclusive rates (Applicable Taxes extra, including profit and overhead) as follows :

Proposed Resources by labour categories (Name and last name)	Period from April 1, 2014 to March 31, 2015	Period from April 1, 2015 to March 31, 2016
	Firm hourly rates	Firm hourly rates
Effector Management		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Electronic Warfare		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Planning		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
3. _____	_____ \$	_____ \$
Threat Evaluation		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Plan Recognition		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
3. _____	_____ \$	_____ \$
Engageability Assessment		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$

<p>Constraint Satisfaction</p> <p>1. _____ \$</p> <p>2. _____ \$</p> <p>3. _____ \$</p>		
<p>Distributed Systems and Architectures</p> <p>1. _____ \$</p> <p>2. _____ \$</p> <p>3. _____ \$</p>		
<p>System Integration</p> <p>1. _____ \$</p> <p>2. _____ \$</p> <p>3. _____ \$</p>		
<p>Complex Software/Systems Testing and Evaluation</p> <p>1. _____ \$</p> <p>2. _____ \$</p>		
<p>Software Development</p> <p>1. _____ \$</p> <p>2. _____ \$</p> <p>3. _____ \$</p> <p>4. _____ \$</p> <p>5. _____ \$</p> <p>6. _____ \$</p> <p>7. _____ \$</p> <p>8. _____ \$</p>		
<p>Naval Warfare Modeling & Simulation (M&S) Software</p> <p>1. _____ \$</p> <p>2. _____ \$</p> <p>3. _____ \$</p>		

Context-Aware Systems		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Game Theory		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Agent & Multi-Agent Systems		
1. _____	_____ \$	_____ \$
2. _____	_____ \$	_____ \$
Project Management		
1. _____	_____ \$	_____ \$

2. **EQUIPEMENT, MATERIALS AND SUPPLIES:** Est.: \$ _____

3. **TRAVEL & LIVING:**

- (a) Canada will not accept any travel and living expenses incurred by the Contractor in the performance of the Work, for:
 - (i) services provided within the Québec City Region (including Defence Research and Development Canada, Valcartier facility), and
 - (ii) any travel between the Contractor's place of business and the Québec City Region (including Defence Research and Development Canada, Valcartier facility).
- (b) For services to be provided outside the Québec City Region, the Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive (http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".
- (c) Canada will not accept any travel and living expenses incurred by the Contractor as a consequence of any relocation of personnel required to satisfy the terms of this Contract.

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- (d) All travel must have prior authorization of the Technical Authority. All payments are subject to government audit.

Est.: \$ _____

TOTAL COST TO A LIMITATION OF EXPENDITURE for the firm portion of the Work:

\$1,574,254.47
(Applicable Taxes extra)

FOR THE PORTION OF THE WORK REALIZED AS-AND-WHEN-REQUESTED USING A TASK AUTHORIZATION (TASKS 8 to 15):

1. **LABOUR:** Firm all-inclusive rates (Applicable Taxes extra, including profit and overhead) as follows:

Proposed Resources by labour categories (Name and last name)	Period from April 1, 2014 to March 31, 2015	Period from April 1, 2015 to March 31, 2016	Period from April 1, 2016 to March 31, 2017	Period from April 1, 2017 to March 31, 2018
	Firm hourly rates	Firm hourly rates	Firm hourly rates	Firm hourly rates
Effector Management				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
Planning				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
3. _____	_____ \$	_____ \$	_____ \$	_____ \$
Threat Evaluation				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
Plan Recognition				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
3. _____	_____ \$	_____ \$	_____ \$	_____ \$
Distributed Systems and Architectures				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
3. _____	_____ \$	_____ \$	_____ \$	_____ \$
System Integration				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$

2. _____	_____ \$	_____ \$	_____ \$	_____ \$
3. _____	_____ \$	_____ \$	_____ \$	_____ \$
Complex Software/Systems Testing and Evaluation				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
Software Development				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
3. _____	_____ \$	_____ \$	_____ \$	_____ \$
4. _____	_____ \$	_____ \$	_____ \$	_____ \$
5. _____	_____ \$	_____ \$	_____ \$	_____ \$
6. _____	_____ \$	_____ \$	_____ \$	_____ \$
7. _____	_____ \$	_____ \$	_____ \$	_____ \$
8. _____	_____ \$	_____ \$	_____ \$	_____ \$
Naval Warfare Modeling & Simulation (M&S) Software				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
3. _____	_____ \$	_____ \$	_____ \$	_____ \$
Natural Language Processing				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
Context-Aware Systems				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
Game Theory				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$

Agent & Multi-Agent Systems				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$
2. _____	_____ \$	_____ \$	_____ \$	_____ \$
Project Management				
1. _____	_____ \$	_____ \$	_____ \$	_____ \$

2. **MATERIALS AND SUPPLIES and EQUIPMENT:** at laid down cost without markup

3. **TRAVEL & LIVING:**

(a) Canada will not accept any travel and living expenses incurred by the Contractor in the performance of the Work, for:

- (i) services provided within the Québec City Region (including Defence Research and Development Canada, Valcartier facility), and
- (ii) any travel between the Contractor's place of business and the Québec City Region (including Defence Research and Development Canada, Valcartier facility).

(b) For services to be provided outside the Québec City Region, the Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive (http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

(c) Canada will not accept any travel and living expenses incurred by the Contractor as a consequence of any relocation of personnel required to satisfy the terms of this Contract.

(d) All travel must have prior authorization of the Technical Authority. All payments are subject to government audit.

Est.: \$ _____

TOTAL ESTIMATED COST TO A LIMITATION OF EXPENDITURE: \$2,774,517.00
(Applicable Taxes extra)

ANNEX C

CONTRACTOR DISCLOSURE OF FOREGROUND INFORMATION

Please refer to **Article 1 - Interpretation of 2040 General Conditions** for the definition of Foreground Information to determine what information must be disclosed.

The Contractor must provide the following information::

1. Contract No.:
2. What is the descriptive title of the FIP (Foreground Intellectual Property)?
3. Abbreviated description of the FIP and, if applicable, of the different systems and sub-systems.
4. What is or was the objective of the project?
5. Explain how the FIP meets the objective of the project (for example: the advantage of the new solution, what problem did the FIP resolve or what benefits did the FIP deliver).
6. Under which category (ies) would you best describe the FIP and why: Patents, Inventions, Trade Secrets, Copyright, Industrial Designs, Rights in Integrated Circuit Topography, Know-how, Other?
7. Describe the features or aspects of the FIP that are novel, useful and not obvious.
8. Has the FIP been tested or demonstrated? If yes, please summarise the results.
9. Has any publication or disclosure to others been made? If so, to whom, when, where and how?
10. Provide names and addresses of the inventors.
11. Provide an explicit and detailed description of the FIP developed during the contract (Refer to pertinent section of the technical report, if necessary).

Please specify name and position of person approving / authorizing this disclosure. This person is to sign and date the disclosure.

Signature Date

Name Title

(Internal DRDC Valcartier)

Signature Date

Name Title (Technical authority)

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qcn015
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ANNEX D SECURITY REQUIREMENTS CHECK LIST

The Security Requirements Check List, which is enclosed, is to be inserted at this point and forms part of this document.

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ANNEX E

DND 626 TASK AUTHORIZATION FORM

The DND 626, *Task Authorization Form*, which is enclosed, is to be inserted at this point and forms part of this document.

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ANNEX "F"
FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY - CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit [Employment and Social Development Canada \(ESDC\)-Labour's](#) website.

Date: _____(YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

- A1. The Bidder certifies having no work force in Canada.
- A2. The Bidder certifies being a public sector employer.
- A3. The Bidder certifies being a federally regulated employer being subject to the Employment Equity Act.
- A4. The Bidder certifies having a combined work force in Canada of less than 100 employees (combined work force includes: permanent full-time, permanent part-time and temporary employees [temporary employees only includes those who have worked 12 weeks or more during a calendar year and who are not full-time students]).

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

- A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

- A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

- B1. The Bidder is not a Joint Venture.

OR

- B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions)